FILED

(1)

No. 94-695 OCT 18 1994

OFFICE OF THE CLERK

IN THE

Supreme Court of the United States

October Term, 1994

INTERNATIONAL BUSINESS MACHINES CORPORATION,

Petitioner,

v.

ALLEN-MYLAND, INC.,

Respondent.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

PETITION FOR WRIT OF CERTIORARI

EVAN R. CHESLER
Counsel of Record
Richard W. Clary
Peter T. Barbur
CRAVATH, SWAINE & MOORE
Worldwide Plaza
825 Eighth Avenue
New York, NY 10019
(212) 474-1000

Robert N. Feltoon
CONRAD O'BRIEN GELLMAN & ROHN, P.C.
1515 Market Street
Philadelphia, PA 19102
(215) 864-9600

Attorneys for Petitioner

Anthony L. Clapes
Donald J. Rosenberg
International Business Machines Corporation
44 South Broadway
White Plains, NY 10601
(914) 288-4050

Howard Weber
DAVIS, SCOTT, WEBER & EDWARDS, P.C.
100 Park Avenue
New York, NY 10017
(212) 685-8000

Of Counsel

October 17, 1994

QUESTIONS PRESENTED FOR REVIEW

1. When it has been found after trial (and plaintiffs chose not to appeal) that, under a rule of reason analysis, an alleged tie-in is procompetitive, and therefore lawful, may a plaintiff nonetheless seek to condemn the same alleged tie-in as per se illegal?

2. In defining markets and assessing market power for the purposes of the antitrust laws, is there (as the Circuit Court held) a rule that a court must, as a matter of law, exclude from the market used products sold by third parties in competition with new products manufactured and sold by the defendant, when the used products were originally manufactured by the defendant?

3. May a Circuit Court overturn dispositive factual findings of a District Court as clearly erroneous under Federal Rule of Civil Procedure 52(a), without (1) reviewing all the evidence cited by the District Court for the findings that support the judgment, (2) reviewing the entire record, and (3) deferring to the District Court's assessment of the credibility of witnesses whose testimony relates to dispositive findings?

PARTIES TO THE PROCEEDING

All parties to this proceeding are listed in the caption of the case. Petitioner International Business Machines Corporation has the following non-wholly owned subsidiaries which are publicly traded:

I/Net, Inc.
Rationale Software Corp.
Marcam Corporation
Parallan Computer Inc.
Ancor Communications, Inc.
Norell Corporation
Image Business Systems
Knowledgeware

TABLE OF CONTENTS

	Page
OPINIONS BELOW	1
JURISDICTION	1
STATUTE INVOLVED	2
STATEMENT OF THE CASE	2
1. Factual Background	3
2. The District Court Opinion	7
3. The Court of Appeals Opinion	9
REASONS FOR GRANTING THE WRIT	11
I. THIS COURT SHOULD SETTLE THE QUESTION WHETHER, WHEN IT IS UNDISPUTED UNDER A RULE OF REASON ANALYSIS THAT AN ALLEGED TIE-IN IS PROCOMPETITIVE, AND THEREFORE LAWFUL, A PLAINTIFF CAN NONETHELESS SEEK TO CONDEMN THE SAME ALLEGED TIE AS PER SE ILLEGAL	11
II. THIS COURT SHOULD SETTLE THE QUESTION WHETHER, IN DEFINING MARKETS AND ASSESSING MARKET POWER FOR THE PURPOSES OF THE ANTITRUST LAWS, A COURT MUST, AS A MATTER OF LAW, EXCLUDE FROM THE MARKET USED PRODUCTS MANUFACTURED BY THE DEFENDANT BUT MARKETED BY THIRD PARTIES	18

Page

III. THIS COURT SHOULD SETTLE THE QUESTION WHETHER A COURT OF APPEALS, IN REVIEWING THE FACT DETERMINATIONS OF A DISTRICT COURT UNDER RULE 52, MAY FIND THOSE DETERMINATIONS TO BE CLEARLY ERRONEOUS WHEN THE COURT OF APPEALS (1) DOES NOT REVIEW THE ENTIRE RECORD ON WHICH EACH DETERMINATION WAS MADE, (2) DOES NOT EVEN ADDRESS ALL THE EVIDENCE SPECIFICALLY CITED BY THE DISTRICT COURT AND (3) REVERSES FINDINGS BASED EXPLICITLY ON CREDIBILITY GROUNDS MERELY BECAUSE THE APPELLATE COURT DISAGREES WITH THE DISTRICT COURT'S ASSESSMENT 25

a. The Court of Appeals Improperly Rejected Findings That The Evidence Precluded Market Power Irrespective of IBM's Market Share 27

b. The Court of Appeals Improperly Rejected Findings That AMI Would Not Have Been Able to Match IBM's Labor Prices 28

c. The Court of Appeals Improperly Rejected Findings That Customers Would Not Have Paid AMI More Than IBM's Labor Prices ... 29

CONCLUSION 30

The Opinion of the United States Court of Appeals for the Third Circuit A1

The Opinion of the United States District Court for the Eastern District of Pennsylvania A37

Excerpts from the Joint Appendix submitted to the United States Court of Appeals for the Third Circuit and Brief for Computer Dealers and Lessors Association, Inc., *et al.*, *amici curiae* A110

TABLE OF AUTHORITIES

Cases	Page(s)
Alaska Airlines, Inc. v. United Airlines, Inc., 948 F.2d 536 (9th Cir. 1991), *cert. denied*, 112 S. Ct. 1603 (1992)	17
Allen-Myland, Inc. v. IBM Corp., 746 F. Supp. 520 (E.D. Pa. 1990)	6
Allen-Myland, Inc. v. IBM Corp., 1993-1 Trade Cas. (CCH) ¶ 70, 244 (E.D. Pa. May 14, 1993)	6-7
Anderson v. City of Bessemer City, 470 U.S. 564 (1985)	26, 27
Avnet, Inc. v. FTC, 511 F.2d 70 (7th Cir.), *cert. denied*, 423 U.S. 833 (1975)	21
Berkey Photo, Inc. v. Eastman Kodak Co., 603 F.2d 263 (2d Cir. 1979), *cert. denied*, 444 U.S. 1093 (1980)	17
Broadcast Music, Inc. v. Columbia Broadcasting Sys., Inc., 441 U.S. 1 (1979)	13, 15
Business Elecs. Corp. v. Sharp Elecs. Corp., 485 U.S. 717 (1988)	12, 15, 16
Concrete Pipe and Prods. of Cal., Inc. v. Construction Laborers Pension Trust for S. Cal., 113 S. Ct. 2264 (1993)	27
Continental T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36 (1977)	12, 14
Davis & Co. Auto Parts, Inc. v. Allied Corp., 651 F. Supp. 198 (S.D.N.Y. 1986)	21
Eastman Kodak Co. v. Image Technical Servs., Inc., 112 S. Ct. 2072 (1992)	passim

Page(s)

Fineman v. Armstrong World Indus., Inc., 980 F.2d 171 (3d Cir. 1992), *cert. denied*, 113 S. Ct. 1285 (1993) 17

Gonzalez v. St. Margaret's House Hous. Dev. Fund Corp., 880 F.2d 1514 (2d Cir. 1989) 15

Grappone, Inc. v. Subaru of New England, Inc., 858 F.2d 792 (1st Cir. 1988) 16

International Salt Co. v. United States, 332 U.S. 392 (1947) 13

Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984) ..... passim

Laurence J. Gordon, Inc. v. Brandt, Inc., 554 F. Supp. 1144 (W.D. Wa. 1983) 21

Metrix Warehouse, Inc. v. Daimler-Benz Aktiengesellschaft, 828 F.2d 1033 (4th Cir. 1987), *cert. denied*, 486 U.S. 1017 (1988) 16

Mozart Co. v. Mercedes-Benz of N. Am., Inc., 833 F.2d 1342 (9th Cir. 1987), *cert. denied*, 488 U.S. 870 (1988) 16

National Soc'y of Professional Eng'rs v. United States, 435 U.S. 679 (1978) 12

NCAA v. Board of Regents, 468 U.S. 85 (1984) 12, 13, 15

Pacific Mailing Equip. Corp. v. Pitney Bowes, Inc., 499 F. Supp. 108 (N.D. Cal. 1980) 21

Rosebrough Monument Co. v. Memorial Park Cemetery Ass'n, 666 F.2d 1130 (8th Cir. 1981), *cert. denied*, 457 U.S. 1111 (1982) 16

Rosefielde v. Falcon Jet Corp., 701 F. Supp. 1053 (D.N.J. 1988) 21

	Page(s)
Roy B. Taylor Sales, Inc. v. Hollymatic Corp., 28 F.3d 1379 (5th Cir. 1994)	16
RSR Corp. v. FTC, 602 F2d. 1317 (9th Cir. 1979), *cert. denied*, 445 U.S. 927 (1980)	21
Standard Oil Co. of Cal. v. United States, 337 U.S. 293 (1949)	13
Times-Picayune Publishing Co. v. United States, 345 U.S. 594 (1953)	13
United States v. E.I. DuPont de Nemours & Co., 351 U.S. 377 (1956)	2, 20, 23
United States v. Aluminum Co. of Am., 148 F.2d 416 (2d Cir. 1945)	passim
United States v. Aluminum Co. of Am., 91 F. Supp. 333 (S.D.N.Y. 1950)	2, 21, 23
United States v. Jerrold Elecs. Corp., 187 F. Supp. 545 (E.D. Pa. 1960), *aff'd per curiam*, 365 U.S. 567 (1961)	16
United States v. Griffith, 334 U.S. 100 (1948)	17
United States v. United States Gypsum Co., 333 U.S. 364 (1948)	27
Virtual Maintenance, Inc. v. Prime Computer, Inc., 957 F.2d 1318 (6th Cir.), *vacated*, 113 S. Ct. 314 (1992)	15
Virtual Maintenance, Inc. v. Prime Computer Inc., 11 F.3d 660 (6th Cir. 1993), *cert. dismissed*, 114 S. Ct. 2700 (1994)	15, 17
Will v. Comprehensive Accounting Corp., 776 F.2d 665 (7th Cir. 1985), *cert. denied*, 475 U.S. 1129 (1986)	16

Page(s)

Statutes and Rules

1992 Horizontal Merger Guidelines § 1.31 Fed. Reg. 41552 (Sept. 10, 1992) 22

15 U.S.C. § 1 ..... 2, 6, 12

15 U.S.C. § 2 6

28 U.S.C. § 1254(1) 1

Fed. R. Civ. P. 52(a) 25, 30

Fed. R. Civ. P. 54(b) 10

Other Authorities

2 Phillip Areeda & Donald F. Turner *Antitrust Law* § 530c (1978) 23

9 Phillip E. Areeda, *Antitrust Law* § 1730 (1991) 14

Peter Asch, *Industrial Organization and Antitrust Policy*, (Rev. ed. 1983) 23

David E. Lazaroff, *Reflections on Eastman Kodak Co. v. Image Technical Servs., Inc.: Continued Confusion Regarding Tying Arrangements and Antitrust Jurisprudence*, 69 Wash. L. Rev. 101 (1994) 17

Lawrence A. Sullivan, *Antitrust* § 13 (1977) 23

No. 94-

IN THE

Supreme Court of the United States

October Term, 1994

INTERNATIONAL BUSINESS MACHINES CORPORATION,

Petitioner,

v.

ALLEN-MYLAND, INC.,

Respondent.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

PETITION FOR WRIT OF CERTIORARI

International Business Machines Corporation ("IBM") respectfully petitions for a writ of certiorari to review the decision of the United States Court of Appeals for the Third Circuit.

OPINIONS BELOW

The opinion of the Court of Appeals is reported at 1994 WL 420285 (3d Cir. Aug. 12, 1994) and is reprinted in the Appendix to this petition ("A") at A1-A36. The opinion of the United States District Court for the Eastern District of Pennsylvania is reported at 693 F. Supp. 262 and is reprinted at A37-A109.

JURISDICTION

The judgment of the Court of Appeals was entered on August 12, 1994. The jurisdiction of this Court is invoked pursuant to 28 U.S.C. § 1254(1).

STATUTE INVOLVED

Section 1 of the Sherman Act, 15 U.S.C. § 1, provides in relevant part: "Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal."

STATEMENT OF THE CASE

This Court has decided only two tying cases in the past 10 years: *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984) ("*Jefferson Parish*") and *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 112 S. Ct. 2072 (1992) ("*Kodak*"). In the light of those decisions, the lower federal courts have wrestled with the application of per se liability to tying arrangements. A critical issue in the post-*Jefferson Parish* cases has been the availability of business justification defenses to per se tying claims. As discussed below, different courts of appeals have decided that question differently. The present case puts the issue in its starkest form: Petitioner IBM prevailed, after a lengthy trial, on Respondent Allen-Myland, Inc.'s ("AMI's") per se *and* rule of reason tying claims, and AMI did not appeal the adverse judgment on the latter; the Third Circuit has now vacated the judgment for IBM on the per se claim and remanded to the District Court, notwithstanding fully adjudicated procompetitive business justifications for the alleged tie. That, we submit, conflicts with the decisions of four other circuits, represents an ill-advised antitrust theory and defies common sense.

The Third Circuit has also adopted an unprecedented interpretation of *United States v. Aluminum Co. of Am.*, 148 F.2d 416 (2d Cir. 1945) ("*Alcoa*")—an interpretation inconsistent with this Court's reasoning in *United States v. E. I. DuPont de Nemours & Co.*, 351 U.S. 377 (1956), and decisions of at least three other circuits. Indeed, the Third Circuit's interpretation of *Alcoa* is flatly inconsistent with the application of *Alcoa* by the District Court on remand in that very case. *See* 91 F. Supp. 333, 357-58 (S.D.N.Y. 1950). Specifically, the Third Circuit has ruled that used products originally manufactured by IBM that are owned and marketed by third parties do not compete, *as a matter of law*, with new products manufactured by IBM. The Circuit Court so ruled despite its contemporaneous finding that IBM faces substantial

competition for its new products from new *and used* products manufactured by others and marketed by those manufacturers as well as third parties. We can find no other court that has adopted such a rule of law. And, like the Circuit Court's ruling on per se tying arrangements, it ignores sound antitrust theory and basic market realities.

Each of these errors, if corrected, would be dispositive of the present case because each, if corrected, would require the Third Circuit to reinstate the judgment of the District Court. Moreover, each of these errors injects undesirable inconsistency into the antitrust laws. For these and other reasons (primarily related to the Court of Appeals' misapplication of Rule 52 of the Federal Rules of Civil Procedure) IBM respectfully urges this Court to grant this petition.

1. *Factual Background.* IBM is one of this country's principal manufacturers of computers. A2. The largest and most powerful computers available at any given time are commonly referred to as "mainframes", and IBM has made and sold such computers for many years. A2-A3. This case concerns IBM's 308X line of mainframe computers, which was introduced in 1980 and which, during the period 1980-1985, comprised the most powerful computers IBM made. A39 n.6.

The 308X line was based on a new form of computer technology that IBM had developed at substantial cost: the thermal conduction module, or "TCM". The essence of TCM technology was that electronic circuits, representing enormous data processing capacity, were very densely packed in a readily installable and removable, water-cooled, heat-dissipating, metal container—the TCM itself. A3. The TCM was a major technological innovation in at least two respects: (1) it allowed 308X computers to have dramatically increased processing speeds over predecessor computers (A63-A66); and (2) it permitted upgrades and downgrades from one model to another with trivial amounts of labor and time as compared to prior generations of computers (A68, A75-76). IBM spent over one billion dollars and over one thousand person-years of labor in developing its TCM technology. A63. IBM's effort to design and to build TCM technology was a response both to consumer demand for such

innovation and to innovations being developed by IBM's competitors. A63, A66.

As noted, the 308X line of computers was designed so that a particular computer's processing capacity—measured by the millions of instructions it could perform per second (a measurement known as "MIPS")—could be increased, as the customer's computing needs increased, by way of an "upgrade". A39. A 308X MIPS upgrade typically involved the removal by an engineer, at the end user's site, of TCMs from the computer and their replacement with different TCMs. A89. Increasing the processing power of the computer through a MIPS upgrade caused the model designation of the computer to change, and MIPS upgrades were therefore also known as "model upgrades". A39. The complete 308X line consisted of 14 models with a range of processing speeds from 3 to 30 MIPS. A40.

IBM realized that, if it could recover and reuse the 308X TCMs removed during upgrades, then it could significantly reduce the costs of manufacture and the ultimate costs to the consumer. This would provide IBM with a competitive advantage over competing equipment and allow it more certainly and quickly to recoup its substantial research and development costs. A90, A93. IBM also realized that, without the ability thus to recover and reuse TCMs, it would have to construct additional manufacturing facilities. A89. That construction would have vastly increased unit costs and would have prevented IBM from meeting consumer demand at competitive price levels. *Id.* In planning and pricing the 308X line, IBM assumed that 25 to 30 percent of its total TCM demand would be met with reused components. *Id.*

In order to reuse a TCM, IBM would have to bring it to equivalent-to-new (or "ETN") condition. A89. This process was much quicker and cheaper than making a new TCM, even before considering the huge cost of having to construct additional manufacturing plants. *Id.* However, the substantial cost savings generated by an ETN program for the 308X line could only be achieved if: (1) IBM was able to recover the used TCMs; (2) IBM could recover them in a condition from which they could properly be refurbished; (3) IBM could be certain of the proper removal of the TCMs and of their proper handling after removal; and (4) IBM could

recover them in a timely and predictable fashion so as to permit necessary planning for the manufacturing cycle. A89-A90. In addition, TCMs could only be reused within the technical limitations of the technology; IBM therefore had to be able to track the reuse of the TCMs in order to ensure that they were not reused too many times. A90.

To meet those requirements, IBM determined that it would market 308X model upgrades on a "net price" basis. A90. In those instances in which an upgrade involved the removal and replacement of TCMs, if IBM itself performed the 308X model upgrade for a customer *and recovered the removed TCMs*, IBM would reduce the price charged for the upgrade accordingly: the price would be a single price for parts and labor, net of a credit given for the removed parts. A39.[1] Alternatively, IBM sold the individual TCMs that comprised upgrades on an "over-the-counter" (or "OTC") basis. In that case, IBM did not necessarily install the TCMs and did not require that IBM recover the removed TCMs. A43 n.15. However, in such situations (in large part to reflect the substantial additional costs to IBM of not being able to reuse removed TCMs), IBM did not charge a "net price"; accordingly, the OTC prices were typically higher than net prices. *Id.* The District Court found this pricing system "provided a reasonable mechanism to facilitate IBM's recovery of its substantial investment in 308X technology." A93.

The ETN approach was successful, and IBM reused thousands of TCMs in 308X processors and upgrades. A89. But for IBM's ability to reuse the TCMs recovered in net priced upgrades, IBM would have faced substantial supply problems that, as the District Court found, would have had "devastating" effects on the whole 308X program. *Id.*

The amount of labor involved in performing those 308X MIPS upgrades to which net pricing was applied was trivial. A88.[2] At

---

[1] Those upgrades that did not involve TCM removal were not net priced by IBM. A40.

[2] IBM had offered upgrades on a net price basis on various lines of its computers since the late 1960s. A39 n.6. Indeed, offering upgrades at a single price for parts and labor was also the practice of other computer manufacturers, including

IBM's standard labor rates, the installation labor typically represented about one percent of the total upgrade price. A69. Prior generations of IBM computers had also been upgradeable, including the 303X line that immediately preceded the 308X line. A2-A3. Those 303X computers, which were based on older "MST" circuit board technology, and not the innovative TCM technology, required significant time and skill to upgrade. A3. As compared to the time and skill required for 308X upgrades, the difference was quite substantial, often by as much as a factor of twenty. A68.

Respondent AMI had been in the business of selling engineering services for installing upgrades on IBM 303X computers. A3. Despite the radical technology change between the 303X and 308X lines, AMI contended that the 308X net pricing policy had deprived AMI of a valuable business opportunity. A41. AMI contended that IBM's assertion that the labor component of its 308X upgrades was trivial was untrue and further contended that IBM had falsely understated that labor component. A71. AMI claimed that net pricing of 308X model upgrades was an unlawful tie-in: that IBM had tied the sale of the services necessary to install a model upgrade (the tied product) to the parts necessary for that upgrade (the tying product). AMI sued IBM under Section 1 of the Sherman Act, asserting both per se and rule of reason violations.[3]

Burroughs, Control Data, NCR, Hewlett Packard, Prime Computer and Amdahl. A39 n.7. It was also AMI's usual practice. *Id.*

[3] AMI also complained that an IBM service charge known as the Installation and Warranty Service Charge was an unreasonable restraint of trade. That claim was tried and judgment was entered for IBM, from which AMI did not appeal. A4 n.5. AMI further complained of an alleged violation of Section 2 of the Sherman Act, unfair competition, and tortious interference with AMI's business. A38 n.1. IBM counterclaimed for copyright infringement, violations of the Lanham Act and various breaches of contract. A38 n.2. AMI's § 2 and unfair competition claims were dismissed and its tortious interference claim was stayed, but AMI was found liable to IBM (in a separate trial) for copyright and trademark infringement, as well as breach of contract. *Allen-Myland, Inc. v. IBM Corp.*, 746 F. Supp. 520 (E.D. Pa. 1990). The relief phase of the counterclaim trial remains to be heard. Those additional claims and counterclaims form no part of this petition. The tying claims addressed here were certified by the District Court for interlocutory appeal pursuant to Fed. R. Civ. P. 54(b). *Allen-Myland, Inc. v. IBM Corp.*, 1993-1 Trade Cas. (CCH)

2. *The District Court Opinion.* AMI's tying claims were tried without a jury in the United States District Court for the Eastern District of Pennsylvania. After trial and extensive post-trial briefing, the District Court entered judgment for IBM under both per se and rule of reason analyses. A109.

The District Court held that, in order to establish a per se tying violation, AMI had to show: (1) the existence of two separate and distinct products; (2) that IBM possessed enough power in the market for the tying product appreciably to restrain competition in the market for the tied product; and (3) that IBM had foreclosed a not insubstantial amount of commerce in the tied product. A43.

The District Court rejected AMI's per se tying claim. First, the court rejected AMI's proposed market definition: a market for "large scale main frame computers", in which IBM's share was alleged to be approximately 70 percent. A46-A47. The court held that "AMI improperly excludes from its market definition a host of products which provide reasonable alternatives to purchases of large scale mainframe computers and upgrades and constrain IBM's ability to raise the prices of these products or exclude competition" (A51), including: (1) new or used computers leased by leasing companies; (2) smaller capacity computers, whether standing alone or as part of a "distributed system"; (3) peripheral devices and software that provided alternatives to an upgrade of a large scale computer; (4) "box swaps" (the replacement of an installed computer by a new one); and (5) upgrades using parts supplied by the customer (A51-A58). Thus, AMI had failed to prove the requisite tying product market. A59.[4] And because AMI's market share evidence was limited

---

¶ 70,244 (E.D. Pa. May 14, 1993).

[4] The District Court also rejected: (1) an alleged submarket consisting of upgrades to large scale mainframe computers (A66-A68); and (2) an alleged subsubmarket consisting of upgrades to IBM large scale mainframe computers (A66 n.43). The court held that the evidence did not support the existence of such submarkets, noting that AMI's own expert witness had denied the existence of a submarket restricted to IBM products and had rejected any distinction between a market for upgrades and a market for mainframes themselves (as to which the court had already determined that IBM did not possess the requisite power). *Id.*

solely to its alleged "large scale mainframe market", AMI likewise failed to prove that IBM possessed the requisite market power. *Id.*

The District Court also relied on market structure evidence to support its conclusion that IBM lacked market power. The court held that a number of companies had entered the market, as manufacturers of hardware, lessors of computer equipment or modifiers of equipment. A60-A62. In addition, the court held that the computer industry was characterized by rapid technological progress and that participants were driven to such innovation by competitive pressures. A62. The court further held that IBM's financial performance did not warrant the conclusion that it possessed market power. A63.

Beyond those dispositive market power determinations, the District Court additionally held that AMI had not been foreclosed from a viable business opportunity—*i.e.*, the court found that there was insufficient evidence either that (1) there were two separate products (labor and parts) involved in a MIPS upgrade, or that (2) any commerce had been foreclosed in the alleged market for the labor involved in a MIPS upgrade. A68-A86. The court held that "[t]he evidence compellingly showed that technological advances incorporated in the 308X computer system have reduced the amount of labor involved in performing 308X MIPS upgrades to an amount which is insignificant and de minimus for antitrust purposes." A75-A76. Thus, the court concluded that there were not two products here: there was no viable opportunity to sell the labor involved unless the labor supplier was also making money from the sale of the parts. A80-A86. Moreover, the court found specifically that AMI could not profitably engage in upgrade activities at the prices IBM was charging for the labor content of MIPS upgrades, and it was undisputed that those IBM prices were nonpredatory. A69-A79, A71 n.53.

Having disposed of AMI's per se claim, the District Court turned to the rule of reason analysis. The court described the planning behind IBM's introduction of TCM technology and the need to recapture TCMs through net pricing in order to make TCM technology viable for the 308X line. A88-A90. The court specifically found that "[n]et pricing facilitated the development and marketing of TCM technology, and thereby enhanced technological progress and economic competition in the data processing industry." A90. In

addition, the court held that it was proper for IBM to price the parts needed for an upgrade, when sold separate from labor and without the return of the removed parts (*i.e.*, on an "OTC" basis) at a relatively high level. A93. The court held that this pricing structure allowed IBM properly to recover its investment in the technology. *Id.* The court specifically found that net pricing was procompetitive and, thus, lawful. A90.

3. *The Court of Appeals Opinion.* AMI appealed the judgment in IBM's favor on the per se claim. It did *not* appeal, however, the judgment on the rule of reason claim. AMI thus left undisturbed the District Court's findings that net pricing was procompetitive, an essential part of the introduction of TCM technology, and an important contribution to technological development and competition. Despite the fact that the District Court's finding of procompetitive benefits of net pricing for 308X MIPS upgrades was unchallenged, the Court of Appeals for the Third Circuit vacated the judgment based on the per se claim and remanded for further proceedings.

The Court of Appeals first addressed market definition. The court held that the market should include used mainframe computers manufactured by companies other than IBM but (based on the court's interpretation of *Alcoa*) must exclude used mainframes, owned and marketed by third parties, that were originally manufactured by IBM.[5] A11-A12. On the same reading of *Alcoa*, the court excluded from the market box swaps and upgrades performed with customer-owned parts. A12-A13. The court remanded for further consideration by the District Court as to whether peripheral products (such as disk drives) and software should be included in the market. A16-A19. The court agreed with the District Court that smaller capacity (*i.e.*, non-

---

[5] We discuss the fundamental error of this holding at pages 18-24 below. It is also worth noting, in this context, that the Court of Appeals stated as fact that IBM is barred from leasing computers under IBM's 1956 consent decree with the United States Government. A3 n.3. That is flatly incorrect. IBM has for many years leased computers in direct competition with leases offered by third party leasing companies (which were excluded from the market by the Third Circuit). *See, e.g.*, AMI Proposed Findings of Fact and Conclusions of Law ("AMI Proposed Findings") ¶ 25 (A111-A112). The Circuit Court's erroneous statement to the contrary is an illustrative example of the appellate "fact" finding in which that court engaged.

mainframe) computers should be included in the market (A14), but remanded for the District Court to decide whether to consider the possible implications of post-acquisition switching from mainframes to smaller computers in light of this Court's reasoning in *Kodak* (A16).[6]

The Court of Appeals also addressed the other indicia of lack of market power found by the District Court: competitive entry, technological innovation and declining prices. A22-A25. The Court of Appeals rejected the District Court's findings on these issues and remanded. A25.

The Court of Appeals also vacated the District Court's determination that AMI had not been foreclosed from a "viable business opportunity"—*i.e.*, that there was no true market for services separate from parts and that, therefore, IBM's actions could not have foreclosed a substantial volume of commerce in upgrading services. A25-A36. In this context, the Court of Appeals reversed a large number of the District Court's findings—including findings concerning the credibility of witnesses—purportedly under the clearly erroneous standard. (We identify below (at pages 27-29) those findings of the Court of Appeals that most clearly misapply that standard.)

---

[6] The trial of this case took place from February 3 to February 19, 1987 and the District Court's decision was issued on July 21, 1988. The judgment, however, was not certified pursuant to Rule 54(b) until May 14, 1993. This Court's opinion in *Kodak* was issued on June 8, 1992. Under those peculiar procedural circumstances, the Court of Appeals left to the District Court's discretion whether to consider on remand the *Kodak* issues. A16.

REASONS FOR GRANTING THE WRIT

I. THIS COURT SHOULD SETTLE THE QUESTION WHETHER, WHEN IT IS UNDISPUTED UNDER A RULE OF REASON ANALYSIS THAT AN ALLEGED TIE-IN IS PROCOMPETITIVE, AND THEREFORE LAWFUL, A PLAINTIFF CAN NONETHELESS SEEK TO CONDEMN THE SAME ALLEGED TIE AS PER SE ILLEGAL.

The most striking feature of the Court of Appeals' decision is that it approves a rule by which an activity that already has been conclusively found to be procompetitive—that "enhanced technological progress and economic competition in the data processing industry" (A90)—may nonetheless be found illegal under the antitrust laws. That should not be the law, and it is explicitly not the law in at least four other circuits.

As the law currently stands, it is possible to analyze tying claims under both a rule of reason and a per se analysis, and plaintiffs often bring both types of claim simultaneously, as AMI did in this case. Here, AMI lost its rule of reason claim because the District Court, after a full trial, found that net pricing for 308X computers was procompetitive, and AMI chose not to appeal from that decision. In such circumstances, to condemn net pricing under a per se analysis is, we submit, unjustifiable. If an alleged tie-in is judicially found—after weeks of trial and thousands of pages of testimony—to be procompetitive, then it must be unqualifiedly accepted as such unless *that* judgment is properly overturned on appeal. The inevitable consequence of the Third Circuit's decision will be to chill procompetitive activities, such as IBM's technological innovation, to the ultimate detriment of consumers.

It appears, since the decisions of this Court regarding tie-ins in *Jefferson Parish* and, more recently, in *Kodak*, that the Courts of Appeals have been confused by the possibility of a concurrent application of both per se and rule of reason analyses to every tying claim. Thus, the circuits have split between those courts that would condemn a tying violation under a per se rule no matter what procompetitive justifications have actually been *proved*, and those courts that acknowledge that procompetitive justifications can be a

defense even to a per se claim in the tying context. We submit that the former—including the Third Circuit here—must be wrong.

As demonstrated below, the Third Circuit and certain other courts have adopted an overly rigid reading of *Jefferson Parish* that elevates the per se analysis to an unyielding substantive rule of liability and, in doing so, ignores the underlying policies—as set forth by this Court—of both the per se analysis and the antitrust laws themselves. For that reason, this Court should grant this petition and clarify the law with respect to tying in order to avoid the potentially devastating effect on competition and innovation that is currently threatened.

This Court has held that:

> "Ordinarily, whether particular concerted action violates § 1 of the Sherman Act is determined through case-by-case application of the so-called rule of reason—that is, 'the fact finder weighs all of the circumstances of a case in deciding whether a restrictive practice should be prohibited as imposing an unreasonable restraint of trade on competition.'" *Business Elecs. Corp. v. Sharp Elecs. Corp.*, 485 U.S. 717, 723 (1988) (quoting *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 49 (1977)).

This Court, however, has recognized that on occasion a rule of reason analysis is wasteful, because a particular practice is so well known to be devoid of procompetitive benefits that it will inevitably fail the rule of reason test. In such circumstances—and only in such circumstances—a per se rule of illegality is appropriate. *Id.* at 723-24. Agreements are *only* per se illegal under Section 1 of the Sherman Act if their "nature and necessary effect are so plainly anticompetitive that no elaborate study of the industry is needed to establish their illegality". *National Soc'y of Professional Eng'rs v. United States*, 435 U.S. 679, 692 (1978).

So, for example, the "paradigm of an unreasonable restraint of trade", which is illegal per se, is horizontal price fixing. *NCAA v. Board of Regents*, 468 U.S. 85, 100 (1984). The probability that such a practice is anticompetitive is, according to this analysis, so high that it is pointless to assess its impact in detail. This Court, however, has recognized that even such horizontal arrangements may, on occasion, be procompetitive, making rule of reason analysis appropriate. Thus, for example, in the *NCAA* case, 468 U.S. at 101, this Court analyzed

such horizontal restraints using a rule of reason test because that case involved "an industry in which horizontal restraints on competition are essential if the product is to be available at all." *See also Broadcast Music, Inc. v. Columbia Broadcasting Sys., Inc.*, 441 U.S. 1, 21-22 (1979) (the substantial lowering of costs afforded by the licensing practices at issue allowed them to be regarded as creating a new product, which could not be condemned per se).[7]

It is much harder in the context of tie-ins to characterize arrangements as so obviously anticompetitive as to warrant per se treatment. Tying is one form of "leveraging"—the attempt by a supplier with some power in one market (the tying product) to gain an advantage in another market (the tied product). *See, e.g., Jefferson Parish*, 466 U.S. at 13 n.19; *Times-Picayune Publishing Co. v. United States*, 345 U.S. 594, 611 (1953). Owing to the dual market aspect of tying, the overall competitive impact depends on the relative advantages and disadvantages to competition in the two separate markets. Some tie-ins may be anticompetitive, while others may be harmless and some may be procompetitive. For example, if the seller has little power in the tying product market, then there will probably be no adverse effect from the tie-in: if consumers do not want to purchase the products together, they will simply go elsewhere. Alternatively, even if there is a restraint placed on competition in the tied product market, that may be outweighed by the advantages to competition in the tying product market that result from the arrangement. *See NCAA*, 468 U.S. at 104 n.26 ("tying may have procompetitive justifications that make it inappropriate to condemn without considerable market analysis"); *see generally Jefferson Parish*, 466 U.S. at 41-42 (O'Connor, J., concurring).

At one point, this Court appeared to lean towards condemning almost all tie-ins as anticompetitive. *See, e.g., Standard Oil Co. v. United States*, 337 U.S. 293, 305-06 (1949); *International Salt Co. v. United States*, 332 U.S. 392 (1947). More recently, however, this Court in certain contexts has recognized the potential for

---

[7] Even if AMI had brought only a per se claim here, the same reasoning could have been applied: the District Court's finding, unchallenged by AMI on appeal, was that without the alleged restraint—net pricing—there would likely have been no TCM technology and no 308X line of computers. A90.

procompetitive benefits from what might appear to be restrictive arrangements and has abandoned the per se rule in those contexts. *See Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36 (1977) (abandoning per se approach in the context of non-price vertical restraints). At least four Justices of this Court have thought the same should be done in the tying context.

In *Jefferson Parish*, Justice O'Connor, joined in concurrence by Chief Justice Burger, Justice Powell and Justice Rehnquist, argued that the per se rule against tying should be abolished and that courts should always look to the overall effects of a tie-in in assessing its legality. 466 U.S. at 35. Justice O'Connor noted that the majority's approach did not fulfill the goal of judicial economy. "[T]ying doctrine incurs the costs of a rule of reason approach without achieving its benefits: the doctrine calls for the extensive and time-consuming economic analysis characteristic of the rule of reason, but then may be interpreted to prohibit arrangements that economic analysis would show to be beneficial." *Id.* at 34.

The majority in *Jefferson Parish* reconfirmed that a per se approach could be applied to tying. It only applied, however, if certain threshold conditions existed: (1) distinct tying and tied products, (2) market power in the tying product, and (3) foreclosure of a substantial volume of commerce. The per se approach sought to condemn only those tie-ins most likely to harm competition, since this Court recognized that tying could be, and probably was, innocuous, absent the market structure required for per se condemnation. *Id.* at 11-12.

This Court's decision in *Jefferson Parish* to continue a per se approach to tying has met criticism. *See, e.g.*, 9 Phillip E. Areeda, *Antitrust Law* § 1730, at 406-14 (1991). Nevertheless, we do not necessarily seek to have that broader question revisited here (although this is surely an appropriate case in which to do so, if the Court so desires, because the District Court's unchallenged finding that this alleged tie-in was procompetitive underscores the dubious value of per se condemnation). Rather, we seek clarification of a narrower question: *whether the procompetitive defense is unavailable in cases of alleged per se tying.*

The necessary implication of the Third Circuit's opinion here is that the conclusively found procompetitive effects of IBM's actions must be ignored on a per se analysis—remand was deemed appropriate in spite of the now conclusive record on those matters. That approach is contrary to this Court's reasoning in the *NCAA* and *Broadcast Music* cases, which allow for overall competitive effects to be considered even in the classically per se anticompetitive context of horizontal restraints. It is also contrary to the underlying purpose of per se rules as explained by this Court in the *Business Electronics* case: if the rule of reason inquiry has already been completed there is no saving involved in "presuming" what the competitive effect is. Yet, other circuits have made the same mistake as did the Third Circuit here.

Thus, in *Virtual Maintenance, Inc. v. Prime Computer Inc.*, 11 F.3d 660 (6th Cir. 1993), *cert. dismissed*, 114 S. Ct. 2700 (1994), the Sixth Circuit ordered a remand for consideration of a per se tying claim despite the fact that plaintiff's defeat on a rule of reason analysis was upheld by the Court of Appeals.[8] Further, the Second Circuit, without fully deciding the matter, also appears to regard its hands as tied since the *Jefferson Parish* decision. In *Gonzalez v. St. Margaret's House Hous. Dev. Fund Corp.*, 880 F.2d 1514, 1519 (2d Cir. 1989), the Second Circuit stated: "We believe that the facts of this case reveal the possible weaknesses in the per se tying analysis. . . . under a 'rule of reason' analysis, we are virtually certain that this arrangement would survive scrutiny. Nevertheless, we must, of course, adhere to the views of a majority of the Supreme Court, which has not abandoned the per se test." The fact that this Court has not abandoned the per se test was apparently construed by the Second Circuit to mean that procompetitive justifications might not be available to the defendant.

---

[8] The Sixth Circuit's opinion was its second decision in that case. This Court had remanded the prior decision for reconsideration in light of *Kodak*. 113 S. Ct. 314 (1992). In the first *Virtual Maintenance* decision, the Court of Appeals had noted that business justification was a defense to a per se claim, 957 F.2d 1318, 1323 (6th Cir. 1992), yet in the second decision the court appeared to ignore that possibility. Thus, *Virtual Maintenance* is somewhat ambiguous on this point.

By contrast, several other circuits have acknowledged that proof of certain procompetitive benefits from tying arrangements may act as a defense to a per se tying claim. Thus, then-Circuit Court Judge Breyer, writing for the First Circuit and discussing the state of the law after *Jefferson Parish*, has stated that "it is conceivable (though we need not decide), that the 'tie' was 'efficient' enough a way to do business that the agreement could have escaped per se condemnation under the lines of cases that have created certain exceptions to the per se rule where economic, or procompetitive justifications are particularly strong." *Grappone v. Subaru of New England, Inc.*, 858 F.2d 792, 799 (1st Cir. 1988). In recognizing the possibility of this defense to the per se analysis, the First Circuit relied in particular on *United States v. Jerrold Elecs. Corp.*, 187 F. Supp. 545, 555-59 (E.D. Pa. 1960), *aff'd per curiam*, 365 U.S. 567 (1961), where a tie-in was permitted when it allowed for the introduction of a new television antenna technology, and on *Will v. Comprehensive Accounting Corp.*, 776 F.2d 665, 673 (7th Cir. 1985), *cert. denied*, 475 U.S. 1129 (1986), where the Seventh Circuit recognized that a package sale—one form of tie-in—could be "just a way to compete." In addition, the Ninth Circuit has held that "[w]e have recognized that antitrust defendants may demonstrate a business justification for an otherwise per se illegal tying arrangement." *Mozart Co. v. Mercedes-Benz of N. Am., Inc.*, 833 F.2d 1342, 1348-49 (9th Cir. 1987) (citing numerous Ninth Circuit decisions), *cert. denied*, 488 U.S. 870 (1988). A similar defense is available in the Fourth Circuit. *Metrix Warehouse, Inc. v. Daimler-Benz Aktiengesellschaft*, 828 F.2d 1033, 1040 (4th Cir. 1987), *cert. denied*, 486 U.S. 1017 (1988).[9]

---

[9] The defense was also made available by the Eighth Circuit in a decision prior to *Jefferson Parish*. *See Rosebrough Monument Co. v. Memorial Park Cemetery Ass'n*, 666 F.2d 1130, 1145 (8th Cir. 1981), *cert. denied*, 457 U.S. 1111 (1982). We have found no Eighth Circuit decision on this question since *Jefferson Parish*. In addition, the Fifth Circuit, while not specifically addressing a business justification defense to a per se tying claim, has evidenced a hostile attitude toward the entire per se approach, holding that "mechanical inquiry into the fit of per se categories has little utility in exposing any injurious impact upon competition of ties". *Roy B. Taylor Sales, Inc. v. Hollymatic Corp.*, 28 F.3d 1379, 1384 (5th Cir. 1994). Indeed, the Fifth Circuit appears to have carved out an exception from the per se analysis for all ties that are also vertical restraints, in reliance on this Court's reasoning in *Business Electronics*. *See id.* at 1385.

The contrary approach suggested by the Second, Sixth and, now, Third Circuits is not mandated by the *Jefferson Parish* decision. Very little was said there about the procompetitive defense to the per se approach. Justice O'Connor, concurring, briefly noted that "affirmative defenses" to the per se doctrine required an analysis of the actual effects of the practice, citing *Jerrold*. 466 U.S. at 34 n.1. And Justice Stevens, for the Court, declined to address the subject, merely footnoting *Jerrold* and holding that "[a]ssuming this defense exists" and "assuming" it justified an earlier contract, it still did not justify the particular conduct at issue in *Jefferson Parish*. *Id.* at 23 n.39.

We thus believe that it cannot be said that *Jefferson Parish* made business justifications irrelevant to per se tying law, but that is what at least three Circuit Courts seem to think. Nor, frankly, has this Court's recent decision in *Kodak* helped resolve this issue; the only reference to business justification as a defense is a "*But see*" citation in Justice Scalia's dissent. *Kodak*, 112 S. Ct. at 2093. Indeed, both *Virtual Maintenance* (in the Sixth Circuit) and this case in the Third Circuit post-date *Kodak*. And commentators have noted that the *Kodak* decision appears to leave open more questions than it answers.[10]

Thus, we respectfully submit that it is appropriate now for this Court to clarify the law of tying, and in doing so to explain the role

---

[10] *See, e.g.*, David E. Lazaroff, *Reflections on Eastman Kodak Co. v. Image Technical Services, Inc.: Continued Confusion Regarding Tying Arrangements and Antitrust Jurisprudence*, 69 Wash. L. Rev. 101, 139-45 (1994). The confusion in the circuits is further demonstrated by the more recent circuit decisions with respect to the broader leveraging doctrine, of which the law of tying is one particular example. With respect to so-called "monopoly leveraging" claims, the circuits increasingly require more than a showing of a competitive restraint in the second market, as suggested in *United States v. Griffith*, 334 U.S. 100, 107 (1948), and *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263 (2d Cir. 1979), *cert. denied*, 444 U.S. 1093 (1980). Rather, the recent cases require actual or attempted monopolization of the second market. *See, e.g.*, *Fineman v. Armstrong World Indus., Inc.*, 980 F.2d 171 (3d Cir. 1992), *cert. denied*, 113 S. Ct. 1285 (1993); *Alaska Airlines, Inc. v. United Airlines, Inc.*, 948 F.2d 536 (9th Cir. 1991), *cert. denied*, 112 S. Ct. 1603 (1992). If it is difficult to prevail more generally on a leveraging claim, how then can it be so relatively easy to prevail on a tying claim, even to the point of condemning procompetitive arrangements?

of business justifications. We submit that the facts of this case—an unchallenged, fully litigated victory on a rule of reason analysis because of the procompetitive nature of the arrangement at issue that nonetheless may now be nullified by a per se claim—present a situation that starkly raises important questions of antitrust law and policy. This Court should resolve the split in the circuits and prevent the reoccurrence of a situation, such as here, where competition and innovation could be sacrificed for the benefit of a single competitor.

II. THIS COURT SHOULD SETTLE THE QUESTION WHETHER, IN DEFINING MARKETS AND ASSESSING MARKET POWER FOR THE PURPOSES OF THE ANTITRUST LAWS, A COURT MUST, AS A MATTER OF LAW, EXCLUDE FROM THE MARKET USED PRODUCTS MANUFACTURED BY THE DEFENDANT BUT MARKETED BY THIRD PARTIES.

The question of market power is, of course, central to the determination of many antitrust disputes. And as a practical matter, whether a defendant is found to have inordinate power hinges critically on the definition of the relevant market. *See, e.g., Kodak*, 112 S. Ct. at 2084 n.15. In this case, the Third Circuit has made two fundamental errors that conflict with decisions of other circuits and this Court. *First*, while purporting to follow precedent, the Third Circuit has actually created an entirely new (and unjustifiable) rule of market definition. The rule—that used equipment is not, *as a matter of law*, in the same market as new equipment made by the same manufacturer defendant—will automatically and artificially narrow the market for, and increase the market power of, every single manufacturer of durable goods in the United States. It will thus vastly expand the proscriptive reach of the antitrust laws, irrespective of the actual facts involved in any particular case. Indeed, the facts cannot matter, because the Third Circuit has fashioned an unyielding rule of law. *Second*, having converted this particular aspect of market definition from a question of fact to a rule of law, the Third Circuit then fashioned a rule that is inconsistent with the rationale followed in the very case—*Alcoa*—on which the Circuit Court relied in formulating this rule.

Turning to the first of the Circuit Court's errors, it should by now be indisputable that questions of market power and market definition are fact questions and should not—indeed, cannot properly—be resolved through the mechanical application of rules of law. That principle was made perfectly plain in the *Kodak* case, this Court's most recent analysis of tying law:

> "Legal presumptions that rest on formalistic distinctions rather than actual market realities are generally disfavored in antitrust law. This Court has preferred to resolve antitrust claims on a case-by-case basis, focusing on the 'particular facts disclosed by the record.' In determining the existence of market power, and specifically the responsiveness of the sales of one product to price changes of the other, this Court has examined closely the economic reality of the market at issue." 112 S. Ct. at 2082 (citing numerous authorities).

Despite that clear mandate, the Third Circuit made an exception in the case of used computers (and, by implication, all other used products). First, the court cited the *Alcoa* case, 148 F.2d 416 (2d Cir. 1945), where the Second Circuit addressed the question of whether to include ingot made from used aluminum in the same market as new aluminum ingot, of which Alcoa was the sole domestic manufacturer at that time. As the Third Circuit noted, the Second Circuit held that "because all secondary ingot was ultimately derived from virgin ingot, Alcoa, by properly exercising its power over the supply of virgin, could indirectly control the supply of secondary as well." A10. The Third Circuit then proceeded to hold that "a powerful manufacturer like IBM was in a position to maximize its profits by carefully controlling the number of mainframes that would later appear on the used leasing market", and excluded used IBM computers from the market definition. A11.[11]

---

[11] Notably, although the Third Circuit elsewhere relied on the brief *amicus curiae* submitted by the Computer Dealers and Lessors Association, Digital Dealers Association and the National Association of Telecommunications Dealers (A14), the Third Circuit utterly disregarded the views of the *amici* in this context. *Amici*, who represent hundreds of computer leasing companies, stated that the marketing of used IBM computers by leasing companies "is widely recognized as the single most important constraining factor on IBM's pricing decisions". A140. The Third Circuit

Even if the Third Circuit's control theory were plausible—and we explain below why it is not—it would still be just a theory. *There was absolutely no evidence here of actual control.* No such evidence was presented to the District Court and the Court of Appeals could not point to any. Thus, the Third Circuit transformed an economic theory into a legal rule, flying directly in the face of this Court's numerous decisions, summarized in *Kodak*, that unequivocally characterize market definition as a fact question.[12] Indeed, the Third Circuit ignored this Court's own understanding of the *Alcoa* decision: that it hinged on the factual question of whether "Alcoa's control over virgin aluminum permitted it to regulate the supply of used aluminum". *United States v. E. I. DuPont de Nemours & Co.*, 351 U.S. 377, 395-96 n.23 (1956) ("*DuPont*").

---

implicitly held that this "constraining factor" must be ignored as a matter of law.

[12] The record below clearly establishes that new IBM equipment faces substantial competition from used IBM equipment sold or leased by third parties. In fact, AMI's own Proposed Findings ¶ 29 (A112-113) stated in relevant part:

> "Leasing companies *compete directly* with IBM in the placement of large scale mainframe computers with end users. It is frequently necessary for leasing companies to reconfigure the machines they seek to place with their customers in order that the used equipment may *compete effectively* with the new large scale mainframes offered by IBM." (Emphasis added.)

See also AMI Proposed Findings ¶ 21 (A111) (cited by the District Court at A51) (new and used IBM mainframes "are offered by the leasing companies in competition with new large scale mainframe computers offered by IBM"). This acknowledgment permeates AMI's Proposed Findings. *See, e.g.*, AMI Proposed Findings, Heading § III (A110-A114) ("Emergence Of The Leasing Companies As Competitors of IBM"); AMI Proposed Findings ¶ 31 (A114) ("Leasing companies are viewed by IBM as competitors . . . Used IBM large scale mainframes which have been upgraded compete directly with new IBM equipment"). Other evidence in the record further supports this finding. *See, e.g.*, A118-A119 (competition of leased used systems against IBM's new equipment is "frequent"; basis for competition is "price performance"); A137 (Leasing company used equipment competes with new IBM equipment); A131, A132 ("Competitive situation" between leasing company used equipment and new IBM equipment); A135, A136 ("Leasing companies compete against IBM with all kinds of computers" and when leasing company successfully leases used IBM equipment in competition with new IBM equipment "that is viewed as a competitive loss to IBM"); A133-A134 (Comdisco competes with IBM and others: "So there is a very competitive business. It's a relatively efficient market ").

The Third Circuit's approach similarly conflicts with the approach taken by courts in other circuits.[13] Courts in the Second, Seventh and Ninth Circuits have all decided that whether used goods compete with new goods is a fact question: sometimes they compete and sometimes they do not. Thus, on remand in the *Alcoa* case itself, Judge Knox in the Southern District of New York recognized that "[t]he question as to whether secondary aluminum should be treated as a competitive element in the market for primary is one of fact, and not of law." 91 F. Supp. 333, 358 (1950). Judge Knox then found that used and new aluminum *were* in the same market. *Id.* By contrast, in *Davis & Co. Auto Parts, Inc. v. Allied Corp.*, 651 F. Supp. 198, 202 (S.D.N.Y. 1986), the court concluded that there were two distinct markets for new and rebuilt automotive parts. The differing results depended on the particular facts before the court.

The Seventh Circuit has taken the same approach. In *Avnet, Inc. v. FTC*, 511 F.2d 70, 77 (7th Cir.), *cert. denied*, 423 U.S. 833 (1975), the Seventh Circuit affirmed the FTC's conclusion that used automotive electrical parts constituted a separate market from new parts. The FTC conclusion had been based on facts with respect to actual market conditions, and not on unsubstantiated theories; it was on that basis that the Seventh Circuit affirmed. *Id.* Similar fact-based decisions can be found in the Ninth Circuit. In *RSR Corp. v. FTC*, 602 F.2d 1317 (9th Cir. 1979), *cert. denied*, 445 U.S. 927 (1980), for example, the Ninth Circuit considered whether primary and secondary lead were in the same market. It concluded that the FTC had correctly determined that there was a separate market for used lead. *Id.* at 1320-22. By contrast, in *Laurence J. Gordon, Inc. v. Brandt, Inc.*, 554 F. Supp. 1144, 1155 n.7 (W.D. Wa. 1983), the court held that used and reconditioned money processing equipment were in the same market as new equipment. Similarly, in *Pacific Mailing Equip. Corp. v. Pitney Bowes, Inc.*, 499 F. Supp. 108, 112-113 (N.D. Cal. 1980), the court held that when customers considered new and used mailing

---

[13] Indeed, prior to the present case, courts within the Third Circuit had treated the new/used question as factual. *See, e.g., Rosefielde v. Falcon Jet Corp.*, 701 F. Supp. 1053, 1068 (D.N.J. 1988) (declining to grant summary judgment because the question of whether both new and used business jets should be included in the relevant product market was one of fact).

machines to be reasonably interchangeable alternatives and the trade regarded them as being in competition, the relevant market had to include both.

Not only have the courts, including this Court, uniformly treated the inclusion of used goods in a market as a factual question, but so has the Antitrust Division of the Justice Department. The Department's Merger Guidelines provide, in defining markets for the purposes of evaluating mergers, that: "To the extent that the analysis under Section 1.1 indicates that used, reconditioned or recycled goods are included in the relevant market, market participants will include firms that produce or sell such goods and that likely would offer those goods in competition with other relevant products." Department of Justice and Fed. Trade Comm'n, *1992 Horizontal Merger Guidelines* § 1.31, 57 Fed. Reg. 41552, 41556 (Sept. 10, 1992). Section 1.1 of the same guidelines provides for a fact intensive analysis properly to determine markets.

In making a factual inquiry as to whether and to what extent used goods should be included in the definition, none of the authorities cited above mentioned Judge Hand's "control" theory from *Alcoa*. Notwithstanding the Third Circuit's adoption of it here, that theory was long ago discredited. As Professor Sullivan has noted, for Alcoa truly to exercise the control Judge Hand suggested, it would have had to be able to identify and predict an entire series of variables, including at what point in the future ingot would become scrap, for what percentage of ingot that would happen, and how technological and competitive variables would affect the flow of scrap. He concluded:

> "If such questions would have seemed as indeterminate to Alcoa executives as they do to the casual observer, it was unrealistic to impute to Alcoa, whatever its share of current production, the ability to take future scrap flow into account in setting current production targets. And if Alcoa could not take future scrap flow into account in some rational manner, one could not with reason assert that the discipline imposed by that scrap upon Alcoa's

market conduct ought to be ignored." Lawrence A. Sullivan, *Antitrust* § 13 at 46 (1977).[14]

If it is unrealistic to think that Alcoa could properly calculate all the future variables needed to control the future supply of used, then it is absurd in the case of IBM. IBM, as one of many computer manufacturers, indisputably operates in a far more rapidly changing technological and business environment than Alcoa confronted in the 1930s as the only domestic manufacturer of a commodity such as aluminum ingot.

The Court of Appeals' second error in this context was to fashion a rule of law that flies in the face of *Alcoa's* own rationale, even if that rationale were to be accepted for purposes of argument. Judge Hand's control theory was premised on the notion that, as the *exclusive* supplier of virgin ingot, Alcoa possessed the ability to limit supply of virgin ingot and thereby control competition presented by used ingot. 148 F.2d at 425. The consistent, and necessary, result of that premise is that if the defendant is *not* the sole supplier of the new product—if it faces any significant competition from other new products—then it cannot limit its supply of new because it will lose out to that competition. That is precisely what Judge Knox reasoned on remand in *Alcoa*. The rise of Reynolds and Kaiser as competitors to Alcoa for virgin ingot led Judge Knox to *include* used ingot in the market. 91 F. Supp. at 357. Judge Knox reached that conclusion even though Alcoa *still* accounted for more than 80 percent of the supply of virgin ingot. *Id.*

This Court implicitly recognized the force of that reasoning in *DuPont*. There, this Court held that all products that were "reasonably interchangeable by consumers" were in the same market. 351 U.S. at 395. It follows that when new and used products are reasonably interchangeable for consumers, they are in the same market. This Court explained that the *only* reason used aluminum did not diminish Alcoa's share of the market revenue was because "Alcoa's control over virgin aluminum permitted it to regulate the supply of used." *Id.*

---

[14] *See also, e.g.*, Peter Asch, *Industrial Organization and Antitrust Policy* 241-42 (Rev. ed. 1983); 2 Phillip E. Areeda & Donald F. Turner, *Antitrust Law* § 530c, at 391-92 (1978).

at 396 n.23. Once Alcoa's control over *all* new aluminum disappeared, then *all* used aluminum had to be included in the market, not merely non-Alcoa used, despite Alcoa's continued control over its own production of new. Thus, in *DuPont*, this Court found *Alcoa* to be "not particularly helpful in the problem of market definition". *Id.*

Here, the Third Circuit acknowledged the substantial competition IBM's mainframes face both from other suppliers' mainframes and from smaller capacity computers supplied by numerous competitors. A7-A12, A13-A16. Yet, the Court mechanically applied an unprecedented rule of law to exclude used *IBM* mainframes—a large proportion of which were owned and marketed by third party leasing companies (A51)—from the market. A11. Worse still, the Third Circuit created an even finer distinction: the used computers of other manufacturers are *in* the Third Circuit's market, and IBM's used computers are out. A11-A12. Surely, that makes no sense. If IBM were to reduce its supply of new computers (assuming, *arguendo*, that the control theory has some validity), it would necessarily lose out not only to competition from other manufacturers' new products, but also to competition from the others' used computers. Yet, according to the Third Circuit, IBM would not lose out to competition from the closest substitute of all: used IBM computers.

The Third Circuit's transformation of the market definition issue from one of fact to one of law, and the gerrymandered rule then formulated, have created a standard that will vastly expand the reach of the antitrust laws in that Circuit, and will undoubtedly encourage forum shopping. Such a result should be addressed—and corrected—by this Court now.

III. THIS COURT SHOULD SETTLE THE QUESTION WHETHER A COURT OF APPEALS, IN REVIEWING THE FACT DETERMINATIONS OF A DISTRICT COURT UNDER RULE 52, MAY FIND THOSE DETERMINATIONS TO BE CLEARLY ERRONEOUS WHEN THE COURT OF APPEALS (1) DOES NOT REVIEW THE ENTIRE RECORD ON WHICH EACH DETERMINATION WAS MADE, (2) DOES NOT EVEN ADDRESS ALL THE EVIDENCE SPECIFICALLY CITED BY THE DISTRICT COURT AND (3) REVERSES FINDINGS BASED EXPLICITLY ON CREDIBILITY GROUNDS MERELY BECAUSE THE APPELLATE COURT DISAGREES WITH THE DISTRICT COURT'S ASSESSMENT.

Much of the Court of Appeals' decision was based on disagreements with the District Court with respect to the facts. Indeed, the *only* disagreements with respect to numerous *dispositive* issues were factual. The standard of review here was supposed to be the "clearly erroneous" standard of Federal Rule of Civil Procedure 52(a). In reversing the District Court's findings, however, the Court of Appeals simply did not abide by the principles governing Rule 52(a)'s application, as set forth by this Court. The Court of Appeals applied no consistent test—ignoring evidence that did not accord with its theories, reweighing evidence and even disputing credibility determinations.

The Court of Appeals failed to follow three basic principles:

First, a Court of Appeals should not reverse a factual finding except on a review of the entire record presented to the District Court. Here, the Court of Appeals assumed that the District Court considered only the specific evidence cited immediately following each factual statement in its opinion. The Court of Appeals reversed if it disagreed with the inferences drawn from that evidence. That approach imposed an unduly stringent requirement as to the manner in which factual findings must be set forth in a lengthy and complex case, and accorded no

deference to the District Court's vastly superior knowledge of a voluminous record.[15]

Second, at a minimum, if a District Court cites multiple pieces of evidence for its factual finding, it is incumbent upon a Court of Appeals to review *all* the cited evidence before making a clearly erroneous determination. Here, however, the Third Circuit held factual findings to be clearly erroneous even when it disagreed with only one among many pieces of factual support cited by the District Court.

Third, when a credibility determination is at issue, even a full review of the cold record by the Court of Appeals may not be enough to disturb the District Court findings: that record will not reflect the indicia of credibility observed by the trial judge. Here, where the Court of Appeals rejected credibility determinations without even discussing all the evidence cited by the District Court, there was, we submit, plain error.[16]

Those three basic principles—all ignored by the Third Circuit—are implicit in the prior opinions of this Court. In *Anderson v. City of Bessemer City*, 470 U.S. 564, 573-74 (1985), this Court held:

> "If the district court's account of the evidence is plausible *in light of the record viewed in its entirety*, the court of appeals may not reverse it even though convinced that had it been sitting as the trier of fact, it would have weighed the evidence differently. Where there are two permissible views of the evidence, the fact-

---

[15] The record here was extensive. As the Court of Appeals noted, the case before the District Court was "vigorously" litigated; the trial transcript was 1,750 pages, there were 2,750 pages of deposition testimony admitted, and 734 trial exhibits. A2 n.2.

[16] In substituting its view of the facts for that of the District Court, the Court of Appeals itself made clearly erroneous factual determinations. For example, as noted (*see* page 9 note 5 above), the court stated as fact that IBM is precluded by a consent decree from leasing computers. That is wrong, and finds no support in the record. Likewise, the Court of Appeals stated as fact that, prior to the events at issue, "AMI grew into a company with $50 million in annual revenue". A3. That, too, is simply wrong. The record shows that AMI's annual revenues never exceeded $15 million. *See* AMI Proposed Findings ¶¶ 43, 190 (A115, A117).

finder's choice between them cannot be clearly erroneous." (Emphasis added.)

Thus, the "clearly erroneous" standard is "significantly deferential" and reversal under this standard requires a "'definite and firm conviction that a mistake has been committed'". *Concrete Pipe and Prods. of Cal., Inc. v. Construction Laborers Pension Trust for S. Cal.*, 113 S. Ct. 2264, 2280 (1993) (quoting *United States v. United States Gypsum Co.*, 333 U.S. 364, 395 (1948)). In addition, credibility determinations are entitled to "even greater deference" because of the District Court's unique ability to "be aware of the variations in demeanor and tone of voice that bear so heavily on the listener's understanding of and belief in what is said". *Anderson*, 470 U.S. at 575. In light of the errors made by the Third Circuit, however, we submit that the law in this regard should be clarified—and, in particular, that the three principles set forth above should be made more explicit—if the law as set forth in this Court's opinions is properly to be applied by the circuits.

(a) *The Court of Appeals Improperly Rejected Findings That the Evidence Precluded Market Power Irrespective of IBM's Market Share.* The Court of Appeals held that the District Court "erred when it ruled that innovation and price reductions precluded a finding of market power". A25. The Court of Appeals agreed that "technology was improving and prices were steadily falling", and stressed that it was not holding that "price reductions and technological improvements can never evidence a lack of market power". *Id.* Rather, it criticized the District Court for having "cited no evidence that these changes had any connection with a decrease in IBM's market power". *Id.* The Court of Appeals was mistaken. The District Court plainly stated that the innovation and price reductions that had occurred were a direct consequence of competition, and cited evidence—totally ignored by the Court of Appeals—in support of that proposition.

The District Court found as fact that IBM's "increasing" and "intensified" "technological innovation" and "price/performance improvement record" *were driven by and reflected* "strong competitive forces", citing to evidence obtained from IBM's competitors and testimony of IBM's expert witness, Professor

Baumol. A62, A63. The Court of Appeals wholly failed to address this evidence and thus *cannot* properly have found the District Court's findings to be clearly erroneous.

(b) *The Court of Appeals Improperly Rejected Findings That AMI Would Not Have Been Able to Match IBM's Labor Prices.* The District Court found that "AMI has failed to establish the requisite separate demand for the services it defines as the tied product" (A80) because, among other reasons, AMI could not viably compete at labor rates comparable to the labor portion of IBM's net price. A69-A72. The Court of Appeals, however, disagreed, concluding that the District Court had improperly failed to credit the trial testimony of Mr. Allen, AMI's President, that AMI would have performed upgrades at rates equivalent to the labor portion of IBM's net price. A34 n.22.

AMI's position throughout this case was that the labor component of IBM's net price was "significantly understated" and "unrealistically low". A71. The District Court disagreed with AMI and, on that point, the Court of Appeals sustained the District Court's finding. A27, A76. At his deposition, Mr. Allen unequivocally stated that AMI could not viably compete with IBM at IBM's rate for various MIPS upgrades. A127-A128, A129-A130; *see also* A60, A70. AMI's labor charges for used parts upgrades generally far exceeded the labor portion of IBM's net price. A138. Further, in a letter to IBM, Mr. Allen stated that "no service organization can survive on [a] profit margin" of 1.87 percent (a profit margin substantially above the 1.2 percent labor component of IBM's net price). A70 n.48; A139.

At trial, however, Mr. Allen changed his mind. In testimony observed and deemed "hyperbolic" by the District Court, Mr. Allen directly contradicted his own deposition testimony that AMI could *not* viably compete. A70. The District Court declined to believe Mr. Allen's conveniently changed trial testimony and relied on the other evidence presented. The Court of Appeals, however, reversed the District Court's entire conclusion on a *single* ground: it disagreed with the District Court's analysis of one piece of the evidence cited by the District Court—the letter to IBM. A34 n.22. The Court of Appeals ignored *all* the other evidence cited (including Mr. Allen's deposition testimony), and additional evidence in the record. And it ignored the

District Court's credibility determination. In short, the Third Circuit ignored all three of the basic principles set out above. That, again, was plain error.

(c) *The Court of Appeals Improperly Rejected Findings that Customers Would Not Have Paid AMI More Than IBM's Labor Prices.* Having found that AMI could not match IBM's labor prices, the District Court also found insufficient evidence that AMI would be able to charge consumers the higher labor prices necessary for AMI viably to compete with IBM. A82. Thus, the court concluded that it could not be said that there were two markets here or that there had been any foreclosure of business. The Court of Appeals, however, cited to one instance where Comdisco (a leasing company) had paid AMI substantially more than the labor component of IBM's net price for installation of a 308X upgrade, and reversed on that basis alone. A27-A28.

The record shows, and the District Court found, that this incident did not involve an upgrade with parts purchased from IBM. A83 n.75; *see also* A124-A126; AMI Proposed Findings ¶¶ 128, 131, 153 (A116). In fact, IBM installation services were *not* available for such used parts upgrades (which had not been refurbished to ETN condition) at charges comparable to the labor component of IBM's net price for upgrades utilizing new parts sold by IBM. A120-A121; *see also* A74. Thus, the sole incident on which the court relied did not involve the allegedly tied product (installation service for 308X upgrades sold by IBM), and it is not probative of leasing company willingness to pay premium prices when cheaper IBM service was available for upgrades. The Court of Appeals totally misunderstood the evidence, because it did not review the entire record.[17] The Third

---

[17] The Court of Appeals apparently assumed that Comdisco could have utilized IBM installation service at substantially lower rates to perform this upgrade. That assumption was at odds with the record. Not only was the evidence that Comdisco did not have the choice of IBM service in that instance. It was also undisputed that had service been available from IBM at its net price level, Comdisco would not have paid AMI's much higher price. A124-A126; *see* A120-A122, A123. Thus, the District Court properly did not credit AMI's "explanation" and did not need to make findings as to the alleged "facts" (IBM delays in performing upgrades and the cost of any such delays to leasing companies) on which the explanation was premised. Unfortunately, the Court of Appeals not only took it upon itself to find those "facts", but it did so

Circuit's opinion is an object lesson in how *not* to review findings of fact in complex litigation. More importantly for present purposes, it represents a precedent for the misapplication of core Rule 52 principles that, we submit, requires clarification and correction from this Court.

* * *

Reversal of the Court of Appeals on these findings would be dispositive. Had the Court of Appeals simply observed the three basic principles set out above, it would not have made those errors and this petition would be unnecessary. By failing to address the entire record, or even all the evidence cited by the District Court, the Court of Appeals has ordered a remand that should result in exactly the same judgment as before. And it raises the possibility of another appeal and another remand if this form of review is repeated. We submit that this Court should prevent that happening here, and in other circuits, by setting out definitively and unambiguously the principles outlined above.

CONCLUSION

For the foregoing reasons, the petition for writ of certiorari should be granted.

October 17, 1994

Respectfully submitted,

EVAN R. CHESLER
Counsel of Record

Anthony L. Clapes
Donald J. Rosenberg
International Business
Machines Corporation
44 South Broadway
White Plains, NY 10601
(914) 288-4050

Richard W. Clary
Peter T. Barbur
CRAVATH, SWAINE & MOORE
Worldwide Plaza
825 Eighth Avenue
New York, NY 10019
(212) 474-1000

Of Counsel

---

without citing any support whatsoever. A28.

Howard Weber
DAVIS, SCOTT, WEBER &
EDWARDS, P.C.
100 Park Avenue
New York, NY 10017
(212) 685-8000

Robert N. Feltoon
CONRAD O'BRIEN GELLMAN &
ROHN, P.C.
1515 Market Street
Philadelphia, PA 19102
(215) 864-9600

Attorneys for Petitioner

APPENDIX

BEST AVAILABLE COPY

ALLEN-MYLAND, INC.,
Appellant,

v.

INTERNATIONAL BUSINESS MACHINES CORPORATION,
Appellee,

No. 93-1586

United States Court of Appeals
Third Circuit

Argued January 24, 1994.

Opinion Filed August 12, 1994.

On Appeal from the United States District Court

for the Eastern District of Pennsylvania

Robert G. Levy, Esquire (Argued) Willard K. Tom, Esquire Joel E. Hoffman, Esquire James H. Clinger, Esquire Washington, D.C.

Carl A. Solano, Esquire Philadelphia, PA Attorneys for Appellant.

Robert N. Feltoon, Esquire Philadelphia, PA.

Evan R. Chesler, Esquire (Argued) Peter T. Barbur, Esquire New York, NY.

Howard Weber, Esquire New York, NY Attorneys for Appellee.

Alan J. Weinschel, Esquire Robert P. Stefanski, Esquire Lucia Mandarino, Esquire New York, NY Attorneys for Amici-Appellants.[1]

Before: MANSMANN and NYGAARD, Circuit Judges and SEITZ, Senior Circuit Judge.

NYGAARD, Circuit Judge.

Allen-Myland, Inc. ("AMI") appeals from the district court's judgment in favor of IBM in this intricate antitrust tying case. We

---

[1] *Amici* consists of the Computer Dealers and Lessors Association, Inc., Digital Dealers Association, and National Association of Telecommunications Dealers.

conclude that the district court erred and will vacate its judgment and remand the cause for further proceedings.[2]

I. FACTS and PROCEDURE

A. Mainframes and Upgrades

The facts underlying this nine-year-old dispute are minutely detailed and quite voluminous. The district court has set forth these facts in great detail in its forty-four page opinion, *Allen-Myland, Inc. v. IBM Corp.*, 693 F. Supp. 262 (E.D. Pa. 1988), and we will present only a brief summary here.

IBM is the world's largest manufacturer of large-scale mainframe computers. These machines have the capacity to process millions of records at a time and manage a tremendous volume of information, making modern operations possible for large corporations, public utilities and government agencies. Without them, business would soon slow or halt. Mainframes are physically large machines, generally occupying significant floor space and requiring a full-time staff to keep them in operation. Needless to say, they are quite expensive, with prices commonly in excess of $1 million.

Mainframes are available in a wide range of computing capacities, to fit the needs of each individual customer. One common measure of capacity is computing speed, measured in millions of instructions per second ("MIPS"). IBM mainframes may also be upgraded, as its customers' computing needs change over time, in what is known as a MIPS upgrade.

Many IBM mainframes are not purchased outright from IBM by their end users, but are instead leased through third-party leasing

---

[2] Although upon review we concentrate on errors, it is well to say at the outset that in a case that has been litigated as vigorously as this one, either finding facts or reviewing those findings for clear error is no easy task. The thirty-volume record on appeal contains 17,469 pages of court filings, trial and deposition transcripts, and exhibits. The district court, of course, was in even a more difficult position. Over 3.5 million pages of discovery documents were produced and 65 days of deposition testimony were taken. The trial transcript alone fills 1,750 pages, there were 2,750 pages of deposition testimony admitted, and there were no fewer than 734 trial exhibits.

companies such as CMI and Comdisco.[3] A mainframe will typically be leased to several end users during its life cycle, and then when obsolete will be scrapped. Often, when the lease term expires and the mainframe returns to the lessor, the computer will need to be reconfigured to meet the needs of the next lessee.

Companies like AMI found a profitable market reconfiguring mainframe computers such as the IBM 303X series.[4] Lessors could not afford to have their machines idle and generating no revenue while waiting for a reconfiguration, yet IBM often took months to install an upgrade. AMI, on the other hand, would turn the job around in a matter of only a few days. Either AMI or the leasing company would buy the required parts outright from IBM for inventory on what were known as SWRPQ terms, meaning that IBM installation was not included. It would then install the parts in the user's computer, set up the appropriate software and test the system. Old parts could often then be used on another computer. Because the 303X series of computers was based on "MST" circuit board technology, which required significant technical skill and time to reconfigure, AMI was in a position to add considerable value in terms of its labor. As a result, AMI grew into a company with $50 million in annual revenue.

In 1980, however, IBM introduced its next generation of mainframe computers, the 308X series, which caused a major erosion in AMI's reconfiguration business. These machines used a new technology, the thermal conduction module, or TCM. A TCM is essentially a water-cooled can containing a much greater density of circuits than the system it replaced. Because more circuitry can be placed in a TCM, there are fewer TCMs to replace; hence, there is much less labor involved in performing an upgrade on a TCM-based computer than on earlier models.

In marketing its 308X series, IBM used a policy known as net pricing. Under this policy, IBM installation labor was bundled in with

---

[3] IBM itself is barred from leasing computers to end users under the terms of a 1956 consent decree entered into with the United States in another antitrust case.

[4] An "X" in an IBM model number indicates that several numerical designators may be used in that position, *e.g.*, 3031, 3033.

the price of the parts for TCM-based MIPS upgrades; SWRPQ pricing was either eliminated or was priced prohibitively high. In addition, any old TCMs recovered from a mainframe during reconfiguration became IBM's property. As a result, customers desiring non-IBM installation of upgrades were required to pay IBM's labor charge anyway. And because the net pricing policy limited the supply of the TCMs on the open market, acquiring parts from sources other than IBM became impractical.

IBM contended that net pricing's purpose was to insure that the old TCMs recovered from reconfigured machines were returned to IBM. TCMs are extremely durable and can easily be refurbished to "equivalent to new" condition. IBM, faced with a manufacturing capacity shortage, stated that it merely wanted to refurbish TCMs that were returned for later reuse in a future upgrade or in a brand-new machine. As for bundling the labor charge, IBM contended its purpose was to ensure that it got its TCMs back, which was enhanced when IBM personnel performed the labor.

B. Procedural History

AMI, however, soon found that much of its reconfiguration business was drying up and filed this action. AMI's four-count complaint alleged that IBM violated sections 1 and 2 of the Sherman Act, 15 U.S.C. §§ 1, 2, and also asserted state law unfair competition and tortious interference claims. IBM counterclaimed for copyright infringement of its software programs and documentation manuals; IBM also asserted state law counterclaims for breach of contract and tortious interference.

AMI's section 1 claim was tried in a bench trial, contending that IBM had tied its upgrade installation services to the parts needed to perform the upgrades.[5] AMI alleged that this tying arrangement constituted a *per se* violation of the Sherman Act; alternatively, it asserted that the tie was still a section 1 violation under the rule of reason.

---

[5] In addition, AMI alleged that IBM's Installation and Warranty Service Charge (IWSC) constituted an unreasonable restraint of trade. The district court found for IBM on this theory, and AMI has not appealed from that finding.

The district court found that IBM's net pricing structure did not constitute a *per se* section 1 violation, for two reasons: first, that IBM's share of the relevant market was not high enough to impose *per se* liability, *id.* at 270-83; and second, that net pricing did not foreclose AMI from a "viable business opportunity," *id.* at 283-93. The court also found that net pricing did not violate section 1 under a rule of reason analysis because sufficient procompetitive reasons existed for it.[6] *Id.* at 293-98.

Later, the district court tried most of the remaining claims and counterclaims, and concluded that AMI was liable to IBM for copyright infringement and violations of the Lanham Act. *Allen-Myland, Inc. v. IBM Corp.*, 746 F. Supp. 520 (E.D. Pa. 1990).[7] The court also entered judgment for IBM on AMI's Sherman Act section 2 claim, concluding that such a claim could not possibly succeed unless its earlier ruling on market power were reversed. *Id.* at 525 n. 1, 559.

Meanwhile, IBM had filed another Lanham Act action against AMI in the United States District Court for the Northern District of Illinois, which was transferred to the Eastern District of Pennsylvania. Moreover, certain issues concerning IBM's relief against AMI on its counterclaims remained unresolved. On AMI's motion, the district court issued an order under Fed. R. Civ. P. 54(b) declaring that its 1988 opinion resolving the antitrust issues constituted a final judgment. *Allen-Myland, Inc. v. IBM Corp.*, 1993-1 Trade Cas. (CCH) ¶ 70,244, 25 Fed. R. Serv. 3d (Callaghan) 1353, 1993 WL 169849 (E.D. Pa. May 14, 1993). This appeal followed.

II. OVERVIEW of the LAW of TYING ARRANGEMENTS

The overarching issue in this appeal is AMI's claim that the district court erred when it found that net pricing was not a *per se* violation of section 1 of the Sherman Act. In a tying arrangement, the seller sells one item, known as the tying product, on the condition that the buyer also purchases another item, known as the tied product.

---

[6] The district court's decision under the rule of reason has not been appealed.

[7] AMI later moved for reconsideration, but that motion was denied. *Allen-Myland, Inc. v. IBM Corp.*, 770 F. Supp. 1004 (E.D. Pa. 1991).

Town Sound & Custom Tops, Inc. v. Chrysler Motors Corp., 959 F.2d 468, 475 (3d Cir.) (in banc), *cert. denied*, 113 S. Ct. 196 (1992). Section 1 of the Sherman Act declares only contracts in restraint of trade illegal. Thus, the antitrust concern over tying arrangements is limited to those situations in which the seller can exploit its power in the market for the tying product to force buyers to purchase the tied product when they otherwise would not, thereby restraining competition in the tied product market. Market power is defined as the ability "to raise prices or to require purchasers to accept burdensome terms that could not be exacted in a completely competitive market." *United States Steel Corp. v. Fortner Enters., Inc.* ("*Fortner II*"), 429 U.S. 610, 620, 97 S. Ct. 861, 867-68 (1977).

On the other hand, if the seller does not have sufficient power in the tying product market, buyers wanting to purchase the tied product from another source will simply avoid the tie by buying the tying product from another supplier. *See Town Sound*, 959 F.2d at 476 (discussing *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 11-14, 104 S. Ct. 1551, 1558-59 (1984)). Such a tie will not restrain an appreciable amount of trade, and accordingly, will not constitute an antitrust violation.

The first inquiry in any section 1 tying case is whether the defendant has sufficient market power over the tying product, which requires a finding that two separate product markets exist and a determination of precisely what the tying and tied product markets are. *See Jefferson Parish*, 466 U.S. at 21, 104 S. Ct. at 1562-63. If the defendant is found to have sufficient market power in the tying product market, then the tie may be a "*per se*" violation of the Sherman Act. This tie is condemned if the probability that the contractual arrangement improperly restrains trade is so high that a judicial inquiry into the actual prevailing market conditions, including possible procompetitive justifications for the tie, is deemed unprofitable. *Id.* at 15-18 & n. 25, 104 S. Ct. at 1560-61 & n. 25; *Town Sound*, 959 F.2d at 477.

Assuming the court finds sufficient market power, it must then decide whether "a substantial amount of interstate commerce" has been affected by the tie. *See, e.g., Town Sound*, 959 F.2d at 477. The Supreme Court has defined "substantial" in absolute dollar terms as

an amount which is not *de minimis* in terms of the "total volume of sales tied by the sales policy under challenge. . . ." *Fortner Enters., Inc. v. United States Steel Corp.* ("*Fortner I*"), 394 U.S. 495, 501-02, 89 S. Ct. 1252, 1257-58 (1969) ($190,000 sufficient).

Finally, to have standing to bring a private antitrust action, the plaintiff must show "fact of damage," defined as some harm flowing from the antitrust violation. *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 114 n. 9, 89 S. Ct. 1562, 1571-72 n. 9 (1969); *Pitchford v. Pepi, Inc.*, 531 F.2d 92, 98-99 (3d Cir. 1975), *cert. denied*, 426 U.S. 935, 96 S. Ct. 2649 (1976). The amount of the damage is not important for antitrust standing; it is sufficient that some damage has occurred. There must, however, be some causal link between the damage and the violation of the antitrust laws. Put another way, the harm must be one that the antitrust laws were designed to prevent. *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 488-89, 97 S. Ct. 690, 697 (1977).

III. SCOPE of the RELEVANT MARKET

A. Introduction

AMI asserts that the tying product is the "large-scale mainframe computer," defined as computers that are "among the largest in memory capacity, the fastest in computing speed, and the most expensive of computers available." *Allen-Myland*, 693 F. Supp. at 270-71. Alternatively, it sets forth two submarkets consisting of the parts and services required for the conversion and upgrade of either IBM mainframes or all manufacturers' mainframes. AMI defines the tied product as the labor required to install upgrades.

The district court found AMI's proposed market definition and submarkets to be too narrow. When the court broadened the market to include various substitutes that it believed shared cross-elasticity of demand[8] with large-scale mainframes, IBM's market share dropped from as high as 79% to under 34.4%, too low to impose *per se*

---

[8] "The outer boundaries of a product market are determined by the reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it." *Brown Shoe Co. v. United States*, 370 U.S. 294, 325, 82 S. Ct. 1502, 1523-24 (1962).

liability. *See Jefferson Parish*, 466 U.S. at 26-27, 104 S. Ct. at 1566 (30% market share insufficient); *Times-Picayune Publishing Co. v. United States*, 345 U.S. 594, 611-12, 73 S. Ct. 872, 882 (1953) (33-40% market share insufficient). The court stated:

> Standing alone, AMI's market share evidence tends to show that IBM enjoys substantial economic power. However, AMI's definitions of large scale mainframes and the relevant market are flawed in several respects and tend to overstate IBM's market share and power.

Allen-Myland, 693 F. Supp. at 271. The district court defined the relevant market to include not only large-scale mainframes, but also added upgrades to large-scale mainframes, leased and smaller capacity computers, peripheral products and software, "box swaps," and upgrades using customer-provided parts to the relevant market. To the extent that the district court's alleged errors were in formulating or applying legal principles, our review is, of course, plenary. We review the district court's findings of fact, however, under the clearly erroneous standard of review.

B. Leasing Companies

The district court first added leasing companies into AMI's proposed market definition. It reasoned as follows:

> Leasing companies, such as Comdisco and CMI, purchase computer equipment from manufacturers and lease it to users. From a consumer's standpoint, they are an alternative source of computer equipment. They compete with IBM. Leasing companies own approximately 40 percent of all large scale mainframe computers, as defined by AMI. Prof. Levin testified that IBM's share of the market would be reduced by an amount he was unable to determine if leasing companies were taken into account in AMI's market definition. If leasing company transactions involving computers comparable and in many cases identical to the large scale mainframes marketed by IBM are included in the relevant market, and the market is measured on a "transaction basis," IBM's share of the market, according to Prof. Almarin Phillips, who testified for IBM as an expert economist, drops to 34.4 percent. Prof. Phillips testified that such

> a share would not reflect "overwhelming" activity in the market on IBM's part.

Allen-Myland, 693 F. Supp. at 273-74 (footnote and record citations omitted). We cannot affirm the district court's finding that leasing companies form a part of the relevant market.

First, the district court relied on the testimony of Professor Levin, AMI's own expert, as an admission that IBM's market share would have to be reduced if leasing companies were added to the relevant market. This reliance is misplaced. Although Professor Levin did affirmatively answer the tautological question whether "leasing companies are competitors of IBM when they market IBM manufactured equipment in competition with IBM," this and our review of the trial transcript indicate that he neither addressed the issue of market share reduction nor made an admission about it.

More importantly, we think that the opinion reveals an analytical flaw. Leasing companies lease both new and used computers. They purchase new mainframes from IBM and lease them to end users; when the lease term is up, if the mainframe is not obsolete and can be leased again, the leasing company will place it with another end user. In addition, leasing companies deal in both IBM and non-IBM computers. There are important legal and competitive distinctions between the various types of equipment in which the leasing companies deal, so they cannot be lumped together.

New computers are, of course, already in the relevant market as defined by AMI. It was therefore incorrect to add them in again when end users lease new computers rather than purchase them outright. In this situation, leasing companies provide nothing more than an alternate way of financing a new computer, but do nothing to increase the supply of new machines. *See Transamerica Computer Co. v. IBM Corp. (In re IBM Peripheral EDP Devices Antitrust Litig.)*, 481 F. Supp. 965, 979 (N.D. Cal. 1979), *aff'd*, 698 F.2d 1377 (9th Cir.), *cert. denied*, 464 U.S. 955, 104 S. Ct. 370 (1983). They do not increase the number of new mainframes, as leasing companies still must purchase them from their manufacturers. Thus, to the extent that IBM had the power to set prices, that power would not be diminished, or at most

would only be slightly diminished,[9] by its sales to leasing companies rather than end users. Since these purchases are already in the relevant market, it was double counting to also include them as part of the leasing market. *Cf. id.*

With respect to leases of used computers, there is a significant difference whether those machines were made by IBM or by some other manufacturer. Where used IBM computers are leased, we think that *United States v. Aluminum Co. of America* ("*Alcoa*"), 148 F.2d 416 (2d Cir. 1945)[10] is apposite. There, Alcoa controlled 90 percent of the market for virgin aluminum ingot. It sought to reduce its market share for antitrust purposes by arguing that secondary ingot derived from scrap competed with virgin ingot for sales. The court held that because all secondary ingot was ultimately derived from virgin ingot, Alcoa, by properly exercising its power over the supply of virgin, could indirectly control the supply of secondary as well. *Id.* at 425.

Alcoa's analysis is persuasive. Indeed, we think the case is even stronger here for excluding the secondary market. Refined aluminum can be melted down and reused repeatedly, and in any event, products made with it may last for decades before they are scrapped and the aluminum is recycled. It therefore may have been quite difficult for Alcoa to estimate future supply and demand for aluminum ingot over a long period of time with sufficient accuracy to maximize its profits

---

[9] Conceivably, a few large, sophisticated buyers could place certain limits on even a dominant seller's power to set prices. There is no evidence that such pressure was applied here.

[10] Although *Alcoa* was decided by the United States Court of Appeals for the Second Circuit, the procedural circumstances under which it reached that court give it added weight as precedent. Under the then-existing version of 15 U.S.C. § 29, appeals from the decrees of district courts in antitrust cases where the United States was a complainant would lie only to the Supreme Court. In *Alcoa*, however, a sufficient number of justices were recused that a quorum could not be obtained; accordingly, the Supreme Court, pursuant to the above statute, remanded the case to the three most senior judges of the Second Circuit: Learned Hand (the author of *Alcoa*), Augustus N. Hand, and Swan. The Supreme Court itself has recognized the special weight of the *Alcoa* opinion. *See American Tobacco Co. v. United States*, 328 U.S. 781, 811-13 & n. 10, 66 S. Ct. 1125, 1140 & n. 10 (1946).

by manipulating the supply of virgin ingot it produced. *See* 2 Phillip Areeda & Donald F. Turner, *Antitrust Law* § 530c (1978).

Computers, however, have considerably more limited lives than aluminum ingot. Technology and price/performance ratios have been advancing so rapidly in the computer industry that used machines cannot be re-leased indefinitely.[11] Accordingly, a powerful manufacturer like IBM was in a position to maximize its profits by carefully controlling the number of mainframes that would later appear on the used leasing market. This is particularly true when, as here, that control was enhanced by IBM's policy of recapturing old parts that could otherwise have been used to extend the useful service lives of existing used mainframes by allowing them to be upgraded and placed with new customers. We therefore conclude that the district court erred when it added leases of used IBM mainframes into the relevant market.[12]

On the other hand, to the extent that leasing companies deal in used, non-IBM mainframes that have not already been counted in the sales market, these machines belong in the relevant market for large-scale mainframe computers. Unlike IBM, there is no allegation that the manufacturers of these computers possess the market power to

---

[11] Moreover, IBM's net pricing and parts recapture policies further reduced whatever control the leasing companies might have had over the prices of used equipment. By recapturing old parts from upgraded mainframes, IBM effectively curtailed the leasing companies' ability to reconfigure their used machines into different models that could have competed against IBM's offerings over the medium term. This effect is similar to that caused by IBM's past practices of offering tabulating and computer equipment only for lease and not for sale. These practices also spawned antitrust litigation, resulting in a 1935 injunction and a 1956 consent decree. *See Control Data Corp. v. IBM Corp.*, 306 F. Supp. 839 (D. Minn. 1969), *aff'd*, 430 F.2d 1277 (8th Cir. 1970).

[12] We also disagree with the district court's view that AMI admitted that leasing companies "compete with IBM and constrain IBM's ability to set prices or exclude competition in the market for new large scale main frame computers." *Allen-Myland*, 693 F. Supp. at 274. The district court cited AMI's proposed finding of fact 29 in support of its conclusion, but AMI asserted only that IBM and lessors compete in the placement of mainframes with end users; in other words, IBM installs computers, and so do Comdisco and CMI. This does not constitute an admission on market cross-elasticity or the scope of the relevant market.

control prices, much less that they would do so in concert with IBM.[13] When these computers are placed in service by leasing companies, they provide an alternative that limits IBM's power in the market.[14]

Accordingly, we conclude that the district court erred when it included all leasing company transactions in the relevant market. On remand, the court should include only leases of used, non-IBM mainframes and determine the extent to which those leases reduce IBM's market share.

C. Box Swaps

The district court also added "box swaps"—replacing an existing computer with a more powerful, new or used computer—into the relevant market, although it did not calculate the degree to which these box swaps eroded IBM's market share.

The analytical problem with this finding is similar to the error with respect to leasing companies. To the extent that a box swap involves purchasing a new IBM or a new or used non-IBM mainframe computer, it constitutes double counting to add box swaps to the market because those sales are already included in the market definition. On the other hand, if a used IBM computer is used in the swap, then to include that machine in the market is incorrect under *Alcoa* for the same reason it was error to include them in the leasing market.

---

[13] Indeed, the so-called "plug-compatible manufacturers" have built their businesses around providing mainframes and peripherals compatible with, but in competition with those of IBM.

[14] This holds most true for plug-compatible mainframes. There is actually a considerable question to what extent non-compatible computers are a realistic short-run alternative for a customer whose computer software and data are tailored to IBM mainframes. We do not reach the issue, however, as Allen-Myland is constrained by its own definition of the market as "large scale mainframe computers," regardless of manufacturer or compatibility. *See Edward J. Sweeney & Sons, Inc. v. Texaco, Inc.*, 637 F.2d 105, 117 (3d Cir. 1980) (antitrust plaintiff held to theory advanced in district court), *cert. denied*, 451 U.S. 911, 101 S. Ct. 1981 (1981).

D. Used Parts Upgrades

Including "used parts upgrades" in the relevant market was also error. A used parts upgrade is an upgrade performed with parts obtained from another computer, either one belonging to the organization needing the upgrade or one belonging to a leasing company. *See Allen-Myland*, 693 F. Supp. at 277.

The district court correctly recognized that the viability of used parts upgrades could be limited by the scarcity of the necessary parts. It then relied on the many memory and channel upgrades and downgrades that had been performed with used parts not acquired from IBM. The record indicates, however, that most memory and channel upgrade parts are not based on TCM technology and were thus not subject to IBM's net pricing and parts recapture policies. The parts required for MIPS upgrades, however, were mostly TCM-based and subject to net pricing and recapture. Thus, that other non-net priced parts were readily available does not support the implicit conclusion that there was no scarcity of MIPS upgrade parts.

Even if used parts were available to perform MIPS upgrades, the record does not suggest any manufacturer of those parts other than IBM. Hence, the reasoning of *Alcoa* is as controlling here as it was for used IBM computers. To the extent that IBM controls the supply and price of the new mainframes from which upgrade parts must be salvaged, it has the power to indirectly control those upgrades as well. Accordingly, it would have been error to include used parts upgrades in the relevant market even if parts had been available.

E. Smaller Capacity Computers

The district court considered AMI's proposed market definition to be too narrow because it failed to include "smaller capacity computers"—computers below the size and sophistication of a large-scale mainframe that nevertheless would be reasonable substitutes, either singly or in combination. *See Allen-Myland*, 693 F. Supp. at 274-75. AMI argues that it was error for the district court to include these smaller machines because there was not sufficient evidence of substitutability between these two types of computers. The district court rejected AMI's argument, citing evidence that smaller computers had effectively displaced mainframes in certain applications and noting a trend toward the replacement of large,

centralized systems with "distributed" systems consisting of greater numbers of smaller capacity computers. *Id.*

AMI argues on appeal that this reasoning was flawed because it failed to consider the rapid development of technology over the life cycle of a typical computer. It agrees that some installations that initially required older generation mainframes might be satisfied with "smaller" machines when it came time to replace their mainframes, because the smaller machines would by then have all the power of the earlier mainframes. Nevertheless, AMI contends, the fact that some users of older mainframe computers might switch to smaller capacity machines proves nothing about whether those smaller machines effectively compete against IBM's current, more powerful mainframes, which are the focus of this litigation. AMI's argument is sound, but unavailing. There was testimony admitted at trial indicating that at least one smaller capacity computer, the Hewlett-Packard HP 3000 series, competed against the IBM 308X series "in many applications." The district court was entitled to, and did, credit this evidence. *Allen-Myland*, 693 F. Supp. at 275.

The *amici* argue that the district court failed to consider the problem of "lock-in." Although mainframes and smaller capacity computers may be substitutable when a new computer application is being developed or when an existing application is no longer useful and must be rewritten anyway, they argue that there are significant switching costs that prevent this from happening in the short run. For example, to "port" an existing application from a mainframe to a smaller computer, the applications software may have to be rewritten, the data files may have to be converted to new formats, and personnel may have to be extensively trained on the new system. The costs of doing so and the delay involved could well cause the computer user to remain with a mainframe-based system rather than convert to a smaller computer; indeed, one court has noted that, for compatibility reasons, over 80 percent of users remain loyal to the manufacturer of their original systems. *See Transamerica*, 481 F. Supp. at 980 & n. 32.

Ordinarily, we would not consider this argument because it was not raised in the district court. This case, however, is unusual in that the district court reached its decision in 1988, but the antitrust issues did not become final and appealable until 1993. During that hiatus,

the Supreme Court issued its decision in *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. , 112 S. Ct. 2072 (1992). Because *Kodak* is directly relevant to the lock-in argument and the district court never had the opportunity to consider the effect of that case, we would be remiss if we did not analyze the issue now.

Eastman Kodak manufactured photocopying equipment that it sold in a competitive market. According to the plaintiffs, who provided service and repair to those copiers, Kodak sought to maintain control over service by restricting the availability of necessary repair parts. Although Kodak argued that it did not have sufficient market power to restrain trade because the market for new copiers was competitive, the Supreme Court held that, under certain circumstances, the fact that the buyer of such equipment was locked into a single supplier could give rise to a finding of market power:

> If the cost of switching is high, consumers who already have purchased the equipment, and are thus "locked-in," will tolerate some level of service-price increases before changing equipment brands. Under this scenario, a seller profitably could maintain supracompetitive prices in the aftermarket if the switching costs were high relative to the increase in service prices, and the number of locked-in customers were high relative to the number of new purchasers.

Id. at 2087.

The situation may be analogous here. If it is prohibitively expensive to switch to a smaller capacity computer before the normal end of an application system's life cycle, then IBM, at least for those locked-in customers, would not face any realistic competition from smaller machines and would thus possess market power as if they did not exist.

The district court cited several anecdotes in the record suggesting that smaller machines are vigorously competing with large-scale mainframes and are often winning out over them. Our review of the record, however, shows that in none of the incidents mentioned was there a mainframe user with a significant base of applications software and data that would have to be rewritten and converted before the application could be moved to a smaller computer. Indeed, in the vast majority of cases, the customer was developing a new application and

had an unfettered choice of which type of computer to purchase. In a few others, the system was approaching the end of its useful life and was slated for replacement. This evidence, then, does not support the conclusion that there was not a significant lock-in problem.

Nevertheless, this remains an issue of fact for the district court to resolve in the first instance. However, whether to consider new issues on remand is not for us to determine, but is properly a matter for the district court's discretion as presider over subsequent proceedings. Therefore, we express no view on whether the district court should permit a new argument to be pursued at this stage of the litigation. The district court may conclude, for example, that allowing AMI to pursue a new theory not raised until after discovery and the completion of an entire trial would result in undue prejudice to IBM. *See Habecker v. Clark Equipment Co.*, 942 F.2d 210, 218 (3d Cir. 1991). We hold only that the determination whether to consider the lock-in argument, to permit further discovery on the issue, and to hear additional evidence are all within the district court's sound discretion.[15] *See Id.*

F. Peripheral Devices and Software

AMI also argues that the district court erred when it added peripheral devices and software into the relevant market. The court found that these items, which provide data input, storage and output capabilities and direct the computer in its processing of information, "provided significant and reasonable alternatives to a wide variety of

---

[15] If it does so, the district court should then proceed to determine the percentage of the mainframe market occupied by existing mainframe users who are locked in to that type of computer by prohibitively high switching costs; the greater that percentage is, the more power IBM has to maintain supracompetitive prices in the mainframe market. *See* Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 521.1a, at 604-05 (1993 Supp.). The court can then determine if IBM's power in the large-scale mainframe market is constrained by the existence of smaller capacity computers, and if so, whether such computers should be included in the relevant market. It may be that the district court will conclude that, while smaller capacity computers cannot be fully excluded from the market, neither can they be fully included. The court may, after considering the evidence and the nature of the market, exercise its discretion and reduce IBM's market share by a number greater than zero percent but less that the full extent of the market for smaller capacity computers.

upgrades and modifications of large scale mainframes." *Allen-Myland*, 693 F. Supp. at 276.

Similar or substitute products are those that "have the ability—actual or potential—to take significant amounts of business away from each other." *SmithKline Corp. v. Eli Lilly & Co.*, 575 F.2d 1056, 1063 (3d Cir.), *cert. denied*, 439 U.S. 838, 99 S. Ct. 123 (1978). Thus, the relevant product market "is composed of products that have reasonable interchangeability for the purposes for which they are produced-price, use and qualities considered." *Id.* at 1062-63 (quoting *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 404, 76 S. Ct. 994, 1012 (1956) (*The Cellophane Case*)); *Tunis Bros. Co. v. Ford Motor Co.*, 952 F.2d 715, 722 (3d Cir. 1991), *cert. denied*, 112 S. Ct. 3034 (1992).

"Interchangeability" implies that one product is roughly equivalent to another for the use to which it is put; while there might be some degree of preference for the one over the other, either would work effectively. A person needing transportation to work could accordingly buy a Ford or a Chevrolet automobile, or could elect to ride a horse or bicycle, assuming those options were feasible. The key test for determining whether one product is a substitute for another is whether there is a cross-elasticity of demand between them: in other words, whether the demand for the second good would respond to changes in the price of the first. *Tunis Bros.*, 952 F.2d at 722.

In the six years since the district court issued its opinion, the personal computer has consolidated its position in modern life, and what once seemed mired in impenetrable technical jargon is now within the vocabulary of the general public. Moreover, technology changes rapidly and if one has an older computer and wishes to use the latest software applications, one often must either upgrade the central processor—the equivalent of a MIPS upgrade—or buy a new computer. Increasing the size of the disk drive, buying more memory or installing the latest version of the operating system may help in some cases but in many others will be ineffective. It thus may be argued that the same situation obtains in the case of larger computers; that is, peripherals and software are complementary goods but are not substitutes for mainframe computers.

The issue, nevertheless, remains a factual one for the district court to resolve. Here, if peripherals and software are reasonable substitutes for mainframes, we should expect to see an increased demand for them as the price of mainframes rises, but the district court cited no evidence of this type. Instead, it relied on the fact that IBM considers peripheral products and software when pricing its computer systems. *Allen-Myland*, 693 F. Supp. at 276. Pricing a large mainframe system on the basis of peripherals included with it against competitive offerings by other manufacturers, however, is simply not evidence that peripherals and mainframes are substitutes for one another.

The district court relied even more heavily on several anecdotes in which large mainframe users had upgraded memory, disks, software or other peripherals rather than perform a MIPS upgrade. *Id.* at 276-77. This testimony fell into two categories. First, some users testified that it was possible to delay a MIPS upgrade for a while by upgrading peripherals or software: akin perhaps to saying that installing new brakes may delay the necessity of purchasing a new car, but it is not sufficient evidence on which to conclude that the products are reasonably interchangeable in use. *See Kaiser Aluminum & Chemical Corp. v. Federal Trade Comm'n*, 652 F.2d 1324, 1331-32 (7th Cir. 1981) ("specialties," which delayed the necessity of replacing refractory bricks in furnaces, did not belong in the same relevant market).

Second, there was testimony to the effect that there are many ways to enhance the performance of a computer system~~,~~ ~~including~~ MIPS upgrades and peripheral/software upgrades. Although it is doubtless true that improvements to peripherals or software will improve a computer's performance somewhat under certain circumstances, we find no evidence on how much or under what conditions improvement could be expected. There was thus no evidence from which to conclude whether peripheral and software upgrades were reasonably interchangeable with either a MIPS upgrade or a different mainframe computer in enough cases that those alternate upgrades could properly be termed substitutes. Nor was there evidence that, because of a price change in mainframes, there was a greater or lesser demand for peripheral/software upgrades. In sum, the evidence was insufficient to support the wholesale inclusion of

peripherals and software into the relevant market for large-scale mainframes.

We emphasize, however, that we are not holding that peripheral and software must be excluded from the relevant market, only that, upon review, the evidence cited in the district court's opinion is insufficient to warrant including them. On remand, the district court will of course determine whether there is some degree of interchangeability or other evidence of cross-elasticity of demand. If there is, then the court is free to adjust IBM's share of the market by its best estimate of the true competition from peripherals and software.

G. AMI's Proposed Submarkets

As a separate ground for reversal, AMI argues that the district court erred by rejecting its two alternate submarkets: the parts and services required for the upgrade and conversion of all large-scale mainframes, and an even narrower submarket confined to parts for upgrading IBM mainframes. The district court rejected the larger submarket based on evidence that upgrades to large-scale mainframes competed with various alternatives, including large-scale mainframes themselves. *Allen-Myland*, 693 F. Supp. at 282-83. It rejected the narrow submarket because "[c]ourts have generally rejected market definitions limited to a defendant's products." *Id.* at 282 n. 43.

In *Brown Shoe Co. v. United States*, 370 U.S. 294, 325, 82 S. Ct. 1502, 1524 (1962), the Supreme Court stated that within a broader product market "well-defined submarkets may exist which, in themselves, constitute product markets for antitrust purposes."[16] Thus, if upgrades and mainframes are not reasonably interchangeable with each other, a valid submarket would exist here. The district

---

[16] The use of the term "submarket" is somewhat confusing, and tends to obscure the true inquiry: whether IBM is constrained by the prices of large scale mainframe computers when pricing its upgrades. If it is so constrained, then the relevant market consists of both mainframes and upgrades. If not, then it is simpler and more accurate to say that the relevant market itself, not some submarket of it, contains only upgrades. *See* Areeda & Hovenkamp, *supra*, ¶ 581.1c, at 535-36 (1993 Supp.). Nevertheless, because the term has been commonly used in the reported cases over the years, we will also continue to use it, being nonetheless mindful that it is inaccurate and of the true question before us.

court, however, found that replacing the computer itself is an alternative to an upgrade. Moreover, it found that IBM priced upgrades and mainframes so that buyers would be indifferent whether to purchase an upgrade or install a more powerful computer. These factual findings are not disputed on appeal, and so the district court's conclusion on the larger submarket must stand. By implication, if the broader submarket fails, the narrower one would appear to fail as well.

Instead of arguing that the district court's factfinding was clearly erroneous, AMI attempts to revive its narrow submarket by relying on the testimony of its expert, Professor Levin, that certain IBM mainframe users were locked into upgrading their computers and lacked the alternative of replacing the whole machine. By so arguing, it attempts to bring this issue within the ambit of *Kodak*, which was decided four years after the district court's opinion in this case.

In *Kodak*, as we have already discussed, the Supreme Court held that when users are locked into a particular vendor by the sunk cost of the product, market power may exist in the aftermarket for parts even though the equipment market is competitive. Here, while the district court found that large-scale mainframes were generally reasonable substitutes for upgrades, its opinion did not address whether there was a subpopulation of IBM mainframe users who for economic reasons were locked into MIPS upgrades when they needed increased computing power. AMI's argument appears to be that if a sufficient number of users actually were locked into using upgrades rather than replacing their computers, then IBM may have had the power to set prices for MIPS upgrades, wholly separate from whether it possessed that power over the large-scale mainframe market, including upgrades. Under this reasoning, we should remand and allow the district court to determine the extent, if any, to which this was the case.

Such a remand would be futile, however, since if IBM had market power over upgrades with respect to a large number of mainframe users, we would expect it to charge supracompetitive prices for upgrades. Yet, the district court found that IBM prices its upgrades such that the user pays the same amount for an upgrade as the price differential between the prices of the more powerful and the existing

computers if purchased new. *Allen-Myland*, 693 F. Supp. at 282. This belies any special power over an upgrade submarket; IBM's power is limited to whatever control it is able to maintain over the larger relevant market. Hence, we will affirm the district court's finding that a valid IBM-only parts submarket did not exist.

H. The "Significant Win/Loss Reports"

Additionally, AMI argues that the district court improperly rejected one of its strongest pieces of evidence in support of its proposed market definition, the "Significant Win/Loss Reports," also known as the SWLRs. These reports were prepared monthly for the top management of IBM and showed, for each competitive situation IBM faced, IBM's product offering, the offering of its competitors, and whether IBM won or lost the sale. *See Allen-Myland*, 693 F. Supp. at 272. According to the testimony of AMI's expert who reviewed the SWLRs (Professor Levin), in 97.6 percent of the reported cases in which the IBM offering was a large-scale mainframe, the competitor's offering was also a large-scale mainframe or an upgrade. AMI asserts that these reports proved that a distinct product market for large-scale mainframe computers exists.

The district court rejected this evidence for several reasons. First, it noted that IBM itself viewed the SWLRs as "poor and unrepresentative indicators of actual market activity" and eventually stopped using them. *Id.* at 273. In the alternative, it relied on the SWLRs themselves, which contained many examples in which non-IBM mainframes competed against IBM computers smaller than IBM mainframes. The district court believed that this additional competition undermined AMI's definition of the relevant market.

Reports such as the SWLRs, which are used by IBM's management, can be powerful evidence in an antitrust case. In *United States v. United Shoe Machinery Corp.*, 110 F. Supp. 295, 304 (D. Mass. 1953), *aff'd per curiam* 347 U.S. 521, 74 S. Ct. 699 (1954), the court stated:

> When a business allows its own important judgments constantly to be affected by a statistical survey unflaggingly made, diligently kept current, and repeatedly consulted at least by subordinate advisers to the officers, then the statistical material may be used

by a court to some degree as reliable evidence against the business.

Nevertheless, notwithstanding the potentially probative value of this type of evidence, there is nothing that requires courts to credit such evidence. Here, as the district court pointed out, the record shows that IBM itself found the SWLRs were unreliable. As the trier of fact, the district court was entitled to credit that testimony and reject the SWLRs.[17] Based on our conclusions about the relevant market and the various additions to it, however, it is possible that the district court may wish to reconsider the probative value, if any, of the SWLRs. On remand, of course, it is free to do so.

IV. OTHER FACTORS BEARING ON MARKET POWER

Market share, of course, is only one type of evidence that may prove the defendant has sufficient market power to impose *per se* antitrust liability. "Market share is just a way of estimating market power, which is the ultimate consideration. When there are better ways to estimate market power, the court should use them." *Ball Memorial Hosp., Inc. v. Mutual Hosp. Ins., Inc.*, 784 F.2d 1325, 1336 (7th Cir. 1986). The district court, in addition to its findings on market share, also held that the lack of entry barriers and the rapid technological change of the computer industry independently precluded any finding of market power.

A. Ease of Entry Into the Relevant Market

Notwithstanding the extent of an antitrust defendant's market share, the ease or difficulty with which competitors enter the market

---

[17] We do not accept the district court's alternative reason for discrediting the SWLRs. Although it may well be true that in some circumstances non-IBM mainframes competed with smaller IBM computers, we must be aware of the true market inquiry in an antitrust tying case: can the defendant exercise market power over the tying product to restrain trade in the tied product market? Although the above evidence could lead to the conclusion that the relevant market here is somewhat broader than mainframes only, a user seeking to avoid IBM's tie needs an alternative to an upgrade or a computer of the type it currently has installed. To the extent that the user needs more computing power, a smaller IBM computer would not appear to be much of a substitute.

is an important factor in determining whether the defendant has true market power—the power to raise prices.

> In many cases a firm's share of current sales does indicate power. . . . In other cases, however, a firm's share of current sales does not reflect an ability to reduce the total output in the market, and therefore it does not convey power over price. . . . [T]he lower the barriers to entry, and the shorter the lags of new entry, the less power existing firms have. When the supply is highly elastic, existing market share does not signify power.

Id. at 1335.

The district court relied on three pieces of evidence that purportedly showed that competitors were relatively free to enter the relevant market. First, it noted:

> A number of companies other than IBM manufacture a wide range of computers having the processing power of IBM large-scale mainframe computers. Several of these (including Digital Equipment Corporation, Data General, Hewlett Packard, Tandem, and NCR) were admittedly excluded from the report upon which Prof. Levin relied to determine what constitute large-scale mainframes.

Allen-Myland, 693 F. Supp. at 278.

This statement is somewhat ambiguous. First, we have already noted that the district court may wish to reconsider the issue of whether the relevant market includes the smaller capacity computers these manufacturers produce in light of the Supreme Court's opinion in *Kodak*. Thus, to the extent the court finds on remand that these computers do not belong in the relevant market, its conclusion will have to be re-evaluated.

More importantly, the district court's reasoning conflates ease of entry into the market with what belongs in the relevant market in the first instance. Even if all the computers made by these manufacturers were properly included in the market, that would say nothing about how easy or difficult it currently is to enter the market. It is conceivable that all these firms have been in the market for many years and that there has been very little recent entry. To use an example from another industry, just because there may be a sizable

number of steelmakers of various sizes and specialties, that does not necessarily make it easy to build a steel mill and enter the business today. Accordingly, the district court's finding of ease of market entry is not supported by the mere presence of these manufacturers of smaller capacity computers.

Second, the district court relied on the recent growth of leasing companies as evidence that the market was easy to enter. Again, we have already held that, except for certain leases of used, non-IBM computers, leasing companies do not belong in the relevant market. Because of this, the ease of entry into the leasing market is legally irrelevant; if IBM has market power over the supply of large-scale mainframes, the immediate entry into the market of these essentially financial intermediaries can do nothing to increase the supply of such computers. Accordingly, leasing companies prove nothing about ease of entry into the relevant market here.

Finally, the district court cited the relative ease of entry into the computer reconfiguration business itself as evidence of a lack of barriers to market entry. The question, however, in an antitrust tying case is whether the defendant can use its power over the tying product market to control the tied product market as well. If IBM has market power over large-scale mainframes (including upgrade parts), that power could not be curtailed even to the slightest degree by the fact that it is easy to enter the tied market of installing upgrades. Indeed, it seems likely that in most if not all tying cases, the tied product market will be competitive, otherwise the defendant would have no reason to impose the tie and restrain competition in the first place.

Accordingly, because the district court's reasons for finding ease of entry into the relevant market were erroneous, its finding that ease of entry vitiated IBM's market power cannot stand.

B. Technological Innovation and Declining Prices

The district court also believed that market power was inconsistent with the fact that technology in the computer industry was rapidly advancing.

Although the performance of computers has been rapidly increasing as costs for performance have plummeted, it proves too much to say that this improvement is inconsistent with market power.

Indeed, in *Greyhound Computer Corp. v. IBM Corp.*, 559 F.2d 488, 497 (9th Cir. 1977), *cert. denied*, 434 U.S. 1040, 98 S. Ct. 782 (1978), another antitrust action brought against IBM and relied upon by the district court, the court stated:

> IBM also contends that price reduction and product improvement are characteristics of the industry and are inconsistent with the existence of monopoly power. But rapid technological progress may provide a climate favorable to increased concentration of market power rather than the opposite. Moreover, a decline in prices does not necessarily imply an absence of monopoly power; a fair profit might have been made at even lower cost to users.

559 F.2d at 497 (footnote omitted) (citing *Alcoa*, 148 F.2d at 427). Indeed, were we to accept the district court's reasoning, a great many defendants with market power, such as Alcoa in the 1920s and perhaps even the former AT & T telephone monopoly, could be insulated from antitrust attack. Here, technology was improving and prices were steadily falling, but the district court cited no evidence that these changes had any connection with a decrease in IBM's market power. We hold that the district court erred when it ruled that innovation and price reductions precluded a finding of market power.[18]

C. Conclusion

Accordingly, we will vacate the district court's finding that IBM lacked sufficient market power for *per se* antitrust liability and remand for further proceedings, during which the district court should re-examine the issue *de novo*.

V. "VIABLE BUSINESS OPPORTUNITY"

In addition to finding that IBM lacked sufficient market power for *per se* liability to be imposed on it, the district court also found that AMI had not been foreclosed from a "viable business opportunity" by IBM's net pricing policy. *Allen-Myland*, 693 F. Supp. at 283. The court found that the labor-saving advantages of TCM

---

[18] We do not, however, hold as a matter of law that price reductions and technological improvements can never evidence a lack of market power. Each case must be decided on its own facts, and facts must be found on the evidence presented.

technology changed what had once been a lucrative reconfiguration business involving a great deal of added value into one whose labor content had become *de minimis*, averaging only 1.2 percent of the net upgrade price. *Id.* According to the district court, because AMI would be required to inventory a supply of upgrade parts in order to compete with IBM, its carrying costs would be so high in comparison to its projected revenues from performing upgrades that AMI would have actually lost over $35 million if IBM had provided upgrades on non-net priced (SWRPQ) terms. *Id.* at 288. Accordingly, because the antitrust laws protect competition rather than competitors, the court held that net pricing was not worthy of condemnation under the antitrust laws.

There is no requirement that one be deprived of a "viable business opportunity" to recover under section 1 of the Sherman Act. We instead interpret the district court as holding that AMI failed to prove the following two prongs of the orthodox framework for a section 1 tying case: first, that two separate markets existed for the tying and tied products; second, that a substantial volume of interstate commerce was affected by the tie. Additionally, the district court's analysis appears to bear on the "fact of damage" issue of whether AMI has standing to bring a private antitrust suit against IBM.

A. Separate Product Markets

In *Jefferson Parish*, the Supreme Court said that, in a tying case, "the answer to the question whether one or two products are involved turns not on the functional relation between them, but rather on the character of the demand for the two items." 466 U.S. at 19, 104 S. Ct. at 1562. It then went on to hold that a tying arrangement cannot exist unless there is a sufficient demand for the purchase of the tied product separate from the purchase of the tying product so as to identify a market structure in which it is efficient to offer the tied product separately from the tying product. *Id.* at 21-22, 104 S. Ct. at 1563. There, the tying product was hospital services and the tied product was anesthesiological services; because on the facts presented, there was evidence of separate patient demands for specific anesthesiologists, the Court held that separate markets existed. *Id.* at 22, 24, 104 S. Ct. at 1564-65.

At least at one time, there was a demand for third-party installations of upgrades separate from the demand for parts; the successful operation of AMI's business before IBM imposed its net pricing policy is conclusive evidence of that. The district court, however, believed that TCM technology, not net pricing, destroyed the separate market for AMI's labor, finding: (1) that customers would not be willing to have upgrades installed by AMI at any price higher than what IBM would charge if forced to provide the service; and (2) that, at the IBM price, AMI would lose massive amounts of money if it attempted to install upgrades in the same way as before net pricing. *Allen-Myland*, 693 F. Supp. at 283-91.

1. Customer Willingness to Pay Premium Prices

The district court credited the testimony of end-user witnesses who said they had no interest in having upgrades installed by a third party such as AMI. It then went on to acknowledge that representatives of leasing companies did indicate an interest in third-party installation, but only at prices competitive with IBM's net price. *Id.* at 290.

The court properly found that, with a few adjustments, IBM would charge $165 per hour for installing upgrades. *Id.* at 287. AMI takes strong exception to the next logical step in the court's reasoning: that AMI would not be able to charge its customers any more than IBM for its services. We are convinced by AMI's argument.

At trial, two leasing company witnesses testified that they would not be interested in paying AMI significantly more than IBM's effective hourly rate for installation of upgrades. Comdisco's Mr. Lewis said that he would use AMI installation service only if it were, at most, slightly more expensive than IBM's price. *Id.* at 291. On cross examination, however, he admitted that AMI had performed an "E to B" upgrade at an effective hourly rate of $2,400 and admitted that such an amount (thought by counsel to be $1,500 per hour) was more than slightly greater than IBM's price. *See id.* at 291 & n. 75. The district court, irrespective of this contradiction, opined:

> Mr. Lewis of Comdisco explained that he would use AMI installation service only if it were "lesser than, the same as, or in rare exceptions, only a slight premium above the prevailing IBM list price." Using an E to B upgrade as an example, Mr. Lewis

> testified that he would not regard an AMI hourly rate of $1500 for installation service as only slightly greater than an IBM hourly rate of $180 or $200.

Id. at 291 (record citation omitted). In a footnote, the court continued:

> Using customer-owned parts, AMI charged Comdisco between $25,000 and $30,000 for installing an E to B upgrade, requiring approximately 20 man hours. Based on Mr. Ross's calculations, the value of IBM installation service for an E to B upgrade, requiring about 13 man hours of labor, is $2,400. Based on these facts and Mr. Lewis' assertions, it is fair to conclude that Comdisco would not select AMI over IBM to install a new E to B upgrade if it had the choice. In view of this evidence, I do not accept AMI's assertion at closing argument that leasing companies "don't care whether the service costs $2400 or $20,000."

Id. at 291 n. 75 (record citations omitted). We conclude that this finding, at least as supported by the district court's opinion, is clearly erroneous. The court did not adequately address why, if Comdisco was unwilling to pay anything more than a slight premium over IBM's rate, it paid not $165 per hour, but a full $2,400 hourly rate. Its statement, that Comdisco would never pay the $2,400 rate if it "had the choice," is true enough, but explains nothing; we would all like to pay the lowest possible price whenever we purchase goods and services. On the other hand, AMI's explanation for its ability to charge a higher price is supported: IBM commonly took so long to price and perform upgrades that the leasing companies' losses from having their machines idle exceeded the premium charged by AMI—which was often able to complete the job within a few days.[19]

In a similar vein, "Mr. Smith of CMI testified that, other things being equal, he did not wish to pay 10, 20 or 30 times more than necessary to obtain installation service." *Id.* at 291. For the reasons

---

[19] We again stress, however, that we cannot and will not substitute our view of the facts for that of the district court. We hold only that the district court's finding of fact is not adequately supported by the elaboration contained in its opinion. On remand, the court may of course re-examine this issue and again reach the same conclusion, if it is supported by sufficient evidence and findings of fact.

stated above, this does not show that CMI, under certain special circumstances such as the need for fast turnaround, would be unwilling to pay a considerable premium, even if under normal conditions it would pay only the IBM rate. This finding too cannot stand as presently supported.

2. Alleged Lack of Demand for Third-Party Installation

The district court additionally supported its finding of lack of demand for AMI-installed upgrades by referring to evidence that, in the few occasions in which IBM had made SWRPQ pricing available for MIPS upgrades, there were few such upgrades sold without IBM labor. The court reasoned as follows:

> There is insufficient evidence of demand for upgrade labor at prices AMI would have to charge to support a conclusion that a competitive market for 308X upgrade labor does or could exist. Leasing companies have purchased virtually no 308X model, memory, or channel upgrades without IBM labor included (in order, for instance, to have AMI install the upgrade) when such upgrades were available on an SWRPQ basis (which roughly equals the price IBM would be entitled to charge for its parts). Every J to K upgrade purchased by CMI and Comdisco was bought with IBM installation service included even though IBM also sold the feature on an SWRPQ basis.

Id. at 290-91 (footnotes and record citations omitted). In a footnote, the court responded to AMI's argument that the reason there were so few SWRPQ orders was that the unbundled prices were not well-publicized:

> Witnesses from CMI and Comdisco testified that neither company knew that IBM sold upgrades (including the J to K) without IBM labor included. I do not credit such testimony, as there was documentary evidence (requests for IBM "SW" prices) to the contrary. Further, the SWRPQ procedure has existed since 1975. SWRPQ prices are readily available from IBM. AMI acknowledged that SWRPQ prices are made available from IBM when specifically requested.

Id. at 291 n. 74. (record cites omitted) AMI argues that this determination was based on insupportable impeachments of witnesses and was clearly erroneous.

Mr. Lewis, Vice-President of Comdisco, the largest leasing company, admitted that, as of the trial date, he knew that IBM installation was not mandatory. He was then cross-examined on the issue of one particular 308X MIPS upgrade, the J to K model conversion. He then stated that he acquired nine such upgrades in the past, all with IBM labor included. But when asked whether he knew that IBM installation was optional at the time he purchased the J to K upgrades, he said he did not. Quite simply, Lewis' admission does not impeach his testimony that he was unaware of SWRPQ pricing during the relevant time period.

The district court then used certain documentary evidence to impeach Lewis. DX 2260 is a request from Lewis for SWRPQ pricing on three upgrades, J16-J24, K16-K24 and G16-G24. None of these are the J-K upgrade that Lewis testified about at trial. Moreover, their designations are consistent with memory upgrades, not MIPS upgrades.[20] DX 2266 is more explicit, specifically stating that memory upgrades are involved. 308X memory was usually neither TCM-based nor subject to net pricing and is thus not at issue. Accordingly, the conclusion to be drawn from this evidence is that Lewis was unaware that MIPS upgrades were SWRPQ-priced, although he had purchased some unrelated memory upgrades without IBM installation in the past. Lewis' testimony that he was unaware of SWRPQ pricing for 308X MIPS upgrades was not impeached. Therefore, nothing can be concluded from Comdisco's failure to purchase MIPS upgrades under SWRPQ terms other than it was unaware they were available.

The district court also noted the testimony of Mr. Loria, a CMI Vice-President. He testified that, to his knowledge, IBM would not

---

[20] 308X model numbers appear to be classified as follows: 308X-YMM; where X is the CPU family, *e.g.*, 3081, 3083, 3084; Y is the CPU power indicator within the family, *e.g.*, 3081-J, 3081-K; and MM is the main memory in megabytes, *e.g.*, 3081-J16, 3081-J24. This is consistent with the numbering scheme for memory upgrades in DX 2266.

sell upgrades without a labor charge. Much of this testimony centered on the year 1976, years before IBM introduced the 308X series of computers. He also stated that he thought that SWRPQ terms meant simply that IBM did not retain the old parts. Except for the J-K upgrade, the only SWRPQ upgrades he testified about were not MIPS upgrades.

The district court believed that this testimony was impeached by three exhibits, DX 2261, DX 2262 and DX 2263. DX 2261, however, is just a 1986 request for SWRPQ pricing on a 96 to 128 megabyte memory upgrade; Loria never testified that non-net priced memory upgrades did not exist. DX 2262 and DX 2263 are IBM's responses to CMI requests for SWRPQ-priced memory upgrades. None of these documents tend to show that Loria knew that a few MIPS upgrades were available without IBM installation; accordingly, his testimony to the contrary was not impeached by this evidence.

Another Vice-President of CMI, a Mr. Smith, testified similarly to Loria, stating that he was not aware that the J to K MIPS upgrade was available without IBM installation. The district court found that DX 2265 impeached Smith's testimony. That document is a computer printout of requests for price quotations ("RPQs") with the name "Gary Smith" handwritten at the top. Some of these RPQs were for SWRPQ terms, but none were for MIPS upgrades. Once again, this evidence does not impeach Smith's testimony.

In short, that to which the district court refers does not bear out its conclusion that these witnesses were untruthful when they claimed not to know of a few MIPS upgrades without IBM installation.[21] Thus, the fact that a few MIPS upgrades were sold under SWRPQ

---

[21] In addition, the district court relied on the fact that the SWRPQ procedure has existed since 1975, that "SWRPQ prices are readily available from IBM," and that AMI acknowledged this fact. This all appears to be true, in general, but there is no indication in the portions of the record cited by the court below that these facts impeached the testimony of the Comdisco and CMI witnesses that they were unaware of SWRPQ-priced MIPS upgrades for 308X series computers. That these prices were available for memory upgrades and for earlier series of computers could not have reasonably put these witnesses on notice that a very small number of SWRPQ-priced MIPS upgrades were made available for the 308X series, given IBM's well-publicized policy of net pricing.

terms does not prove that there was no separate demand for installation services, particularly considering that IBM had every economic incentive to protect its revenues and avoid widely publicizing the existence of such upgrades.

3. AMI's "Massive Losses" From Inventory Costs

In addition to finding that AMI would attract no customers at the price the court believed it would have to charge for its service, the district court also found that AMI would suffer massive losses at the IBM hourly rate. It based this conclusion on its belief that AMI would have to maintain an inventory of expensive upgrade parts to provide adequate turnaround time. Because IBM's revenues would average only 1.2 percent of the net price for the upgrade and its carrying costs for the parts inventory would average 3 percent, the district court concluded that AMI stood to lose over $35 million by competing with IBM. *Id.* at 288. Although the court acknowledged that AMI's principal argument was that leasing companies inventoried their own parts and thus saved AMI the costs of doing so, it nevertheless included these carrying costs when calculating AMI's ability to make a profit, based on a purported admission by AMI.

It is, of course, true that AMI would have to carry an inventory of parts to give its customers fast turnaround on upgrade installations. This is exactly what AMI did for the earlier 303X series of computers. The exception would be if the customer itself maintained an inventory of parts. Thus, to the extent AMI intended to compete for the business of end-users, who typically do not inventory parts, AMI would have to maintain an inventory, which would be presumably unprofitable given the revenue generated by the installation. Leasing companies, on the other hand, constituted over 90 percent of AMI's business and were known to inventory their own parts. So, while the relatively minuscule end-user business may have been foreclosed from AMI by the low margins generated by TCM-based upgrades, the business from leasing companies was not.

It would be both a non-sequitur and clearly erroneous on its face to find that AMI's argument that leasing companies would inventory their own parts and relieve AMI of that cost is invalid solely because AMI admitted it will incur such costs on its own inventory. The district court, however, relied on its belief that Mr. Allen admitted that

AMI would incur inventory costs if it were permitted to compete in the market of 308X net priced upgrades. *Id.* at 288-89. The record contains the following exchange:

> Q. And according to Mr. Hamilton's report on damages, he indicates that you have told him that AMI must maintain a certain worth of inventory of upgrades and parts, and that a fair estimate of AMI's carrying costs for that inventory, just for the carrying costs of the interest involved is approximately three percent of IBM's price, whatever you happen to pay for those parts. Did you tell Professor Hamilton that, sir?
>
> A. I identified for Professor Hamilton, when he was doing a damage study, he asked me, if you were permitted to compete in this market of net priced MESs, what would be your costs?
>
> I identified it would be AMI's intent, similar to the volume procurement agreement, to order many parts from IBM.
>
> There was a question whether these parts would come from the parts center on a very rapid response or whether AMI would have to inventory, virtually millions of dollars of inventory.
>
> From going on prior experience with the VPA, where we ordered large quantities for inventory and were not using the parts center, he said, wouldn't you have some type of carrying charges?
>
> Now, that number that he picked of three percent was if the prime rate were 12 percent. . . .
>
> I don't know further the—all the economic data in regard to what—Mr. Hamilton went further from that, but the question was asked.

On the next page of the transcript, Allen then stated that as long as upgrade parts could arrive quickly from the IBM Parts Center, there would be no need for AMI to maintain an inventory. This "admission," (Allen stated only that the question was asked), does not admit that AMI would be required to carry an inventory for all of its customers. It was therefore insufficient grounds upon which to

conclude that inventory costs must be included in every situation in which AMI does business.[22]

4. Low Margins and Separate Markets

The district court also found that the value of the labor content of 308X MIPS upgrades was *de minimis* for antitrust purposes. *Id.* at 283. Later, it referred to another purported admission by AMI's counsel, to the effect that, if the labor content of upgrades was *de minimis*, then parts and labor would have to be considered a single market. *Id.* at 289 n. 71.

To the extent it might be argued that AMI admitted that a 1.2 percent margin caused parts and installation to fold into one market, as a matter of law we cannot agree. The record indicates that the total value of all 308X MIPS upgrades performed between 1981 and 1985 was over $2 billion. 1.2 percent of a $2 billion market amounts to over $20 million. *See Allen-Myland*, 693 F. Supp. at 292. This amount is not *de minimis* within the meaning of the antitrust laws. *See Fortner I*, 394 U.S. at 501-02, 89 S. Ct. at 1257-58 ($190,000 not considered *de minimis* by the Supreme Court).

5. Conclusion

The district court's finding that no separate market existed for installations of upgrades cannot stand. We will accordingly vacate it and remand for further proceedings. On remand, the district should re-examine the issue *de novo*.

---

[22] Earlier in its opinion, the district court found that Allen had admitted that AMI could not make a profit on a labor value of 1.2 percent of the net upgrade price. *Allen-Myland*, 693 F. Supp. at 284. The trial testimony shows that counsel for IBM asked Allen whether he would take on an upgrade for $25,500 labor charge when the net price was $2,090,000, a 1.2% margin. Allen replied that he would, and that he thought it was a viable business opportunity. Counsel then tried to impeach him with a letter he wrote to IBM in the context of settlement negotiations. On the witness stand, Allen admitted the existence of this letter but claimed that counsel was taking it out of context. We do not think this letter can be fairly read to concede that AMI could never make a profit on a 1.2 percent margin. Like the statement discussed in the above text, it admits no more than that, to the extent AMI must buy and inventory the parts, it cannot earn a profit on that margin.

B. Substantial Volume of Commerce

As part of its "viable business opportunity" inquiry, the district court also found that AMI had not proved that IBM's tying arrangement foreclosed a substantial volume of commerce. *Allen-Myland*, 693 F. Supp. at 292-93. Although the court acknowledged that the $20 million market for upgrade installations was quantitatively more than sufficient, it found that AMI had not shown "that it engaged in an activity foreclosed by IBM's net pricing." *Id.* The district court believed that it was the changes brought about by the 308X's TCM technology, not net pricing, that foreclosed AMI from the upgrade business. Thus, according to the court, competition with IBM in the installation of upgrades had become unprofitable because of advancing technology, quite apart from any anticompetitive effects of the tie.

First of all, to the extent the district court based this conclusion on its findings that AMI lacked a viable business opportunity, it necessarily erred. We have already pointed out the factual and analytical errors behind those conclusions. Although we do not decide those factual issues ourselves, it appears likely from this record on appeal that AMI could have successfully performed upgrades and made a profit in the absence of net pricing; at least, the district court's findings that no one would pay AMI any more than IBM and that AMI would be burdened with across-the-board inventory costs were not supported by the evidence it cited.

Second, and more importantly, there is no requirement that an antitrust plaintiff show profitability in addition to showing some foreclosure of commerce. If the competition foreclosed by a tying arrangement had to be profitable, then many anticompetitive tying arrangements would be immunized from antitrust attack. For example, a new competitor attempting to break into a dominated market might well lose money for a time, either because of aggressive introductory pricing or because its sales had not yet grown to the point where economies of scale made its production operations sufficiently inexpensive to turn a profit. Yet, the defendant could exploit its market power with impunity on the ground that the plaintiff could not profitably compete against it, and continue using that power to keep all new competitors out of the tied market. Such a result would be

contrary to the purpose of the antitrust laws. Accordingly, we hold that the district court erred when it found that a substantial amount of commerce was not foreclosed.

C. Fact of Damage

An antitrust plaintiff must also prove what is known as "fact of damage," defined as harm of a type which the antitrust laws were designed to prevent. *See supra* typescript at 10. The district court declined to rule on this issue, but noted that its earlier findings that AMI was not deprived of a viable business opportunity seemed to preclude any finding that AMI suffered the requisite damage. *Allen-Myland*, 693 F. Supp. at 298. We, of course, make no finding, but observe that the district court's errors on what it termed the business opportunity issue call its tentative conclusion on fact of damage into question as well. The matter remains, however, an issue for that court to resolve in the first instance.

VI. CONCLUSION

We will accordingly vacate the district court's judgment in favor of IBM and remand for further proceedings consistent with this opinion.

ALLEN-MYLAND, INC.

v.

INTERNATIONAL BUSINESS MACHINES CORPORATION.

Civ. A. No. 85-6166.

United States District Court,

E.D. Pennsylvania.

July 21, 1988.

Bancroft Haviland, Philadelphia, Pa., Robert G. Levy, Berryl Speert, Allan Hillman, Cynthia Leppert, Frank, Bernstein, Conaway & Goldman, Baltimore, Md., for Allen-Myland, Inc.

Sandra K. Manning, Cravath, Swaine & Moore (pro hac vice), Richard A. Solomon, Robert J. Marvin, Jr., Davis, Markel & Edwards New York City, Conrad & O'Brien, Philadelphia, Pa., Robert N. Feltoon, Kaare Phillips, Evan R. Chesler, Richard W. Clary, Eric M. Nelson, Cravath, Swaine & Moore, New York City, Steven M. Edwards, Howard Weber, Davis, Markel, Dwyer & Edwards, James Szymanski, Paula L. Liang, New York City, for Intern. Business Machines Corp.

MEMORANDUM

O'NEILL, District Judge.

AMI brought this action asserting federal and state law claims against IBM,[1] which filed several counterclaims.[2] The parties agreed to try the liability aspect of AMI's claim under Section 1 of the Sherman Act[3] separately. AMI's claim has two parts:[4] AMI alleges that IBM's net pricing policy constitutes an unlawful tying arrangement and that IBM's Installation and Warranty Service Charge constitutes an unreasonable restraint of trade. The issues were tried before me non-jury;[5] this memorandum constitutes my findings of fact and conclusions of law. *See* Fed.R.Civ.P. 52(a). Jurisdiction over the Section 1 claims is based on 28 U.S.C. § 1337. Suit is brought pursuant to Section 4 of the Clayton Act, 15 U.S.C. § 15.

---

[1] In Count I of the complaint, AMI charges IBM with violations of Section 1 of the Sherman Act, 15 U.S.C. § 1; in Count II, with a violation of Section 2, 15 U.S.C. § 2; in Count III, with unfair competition; and in Count IV, with tortious interference with business relationships and prospective business relationships. At trial, AMI dismissed with prejudice Count III of its complaint. AMI, Opening Statement, Tr. at 3.

[2] In its first counterclaim, IBM charges AMI with breach of contract; in the second counterclaim, with tortious interference with the performance of contracts; and in the third, fourth, and fifth counterclaims, with copyright infringement.

[3] Section 1 of the Sherman Act states: "Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal. . . ." 15 U.S.C. § 1.

[4] AMI's Section 1 claim contains a third part, based on IBM's alleged interference with AMI's ability to acquire parts from independent firms, see Complaint, ¶ 28(b), but the parties agreed not to raise this issue at the initial trial.

[5] This case was initially assigned to the Honorable Clarence C. Newcomer, U.S. District Court Judge for the Eastern District of Pennsylvania. It was reassigned to me on January 28, 1987. Trial began on February 3, 1987.

NET PRICING

An IBM 308X net priced upgrade is an MES (Miscellaneous Equipment Specification) or feature (a specific set of computer products) that is installed in an IBM model 308X computer by removing parts from the computer and replacing them with different parts. Ritchie, Tr. 1076-77; Rizzo, Tr. 1188-90. Generally, the purpose of any upgrade (308X upgrades included) is to enhance the performance of the computer, often to increase the capabilities of a used computer to match the performance level of a newer model. Upgrades include model upgrades (MIPS upgrades), increases in memory capacity (memory upgrades), and increases in the number of computer channels (channel upgrades). *See* Ritchie, Tr. 1077; Bigando, Tr. 1232; Lynn, Dep. Tr. 62.

IBM 308X net priced upgrade contracts provide that the installation and removal of parts is to be performed by IBM employees, and that the removed parts become the property of IBM and are returned to the company.[6] Ritchie, Tr. 1086-87; Rizzo, Tr. 1188-90; Levin, Tr. 78-80, 744; PX 139; PX 140; PX 138. IBM issues its net priced upgrade customers a credit for the parts removed by IBM engineers during the installation of a net-priced MES. *E.g.*, Levin, Tr. 78; PX 457; PX 145. A customer who purchases a net priced upgrade from IBM is not charged separately for the labor associated with performing the upgrade. *See* DX 829. The customer receives a single price quotation for the final, installed product.[7]

---

[6] IBM decided to apply net pricing to the 308X line of computers in 1980. The first 308X computer (the 3081D) was announced in November of 1980. DX 1799. However, IBM also had a net pricing policy with respect to the earlier line of 303X computers; many, perhaps all, 303X MIPS upgrades were net priced. *See* A.P.F. at ¶ 118; Allen, Tr. 286-288. Net pricing was first implemented in the late 1960's. Ritchie, Tr. 1078. AMI challenges net pricing only as it applies to the 308X line of computers.

[7] Computer manufacturers other than IBM generally quote a single price for the parts and labor included in upgrades. *See* English, Tr. 1566-67 (Burroughs); Ramsburg Dep. Tr. 6-7 (Control Data Corporation); Nielson Dep. Tr. 7 (NCR); Ikezoye, Dep. Tr. 6-7 (Hewlett Packard); Gibbs, Dep. Tr. 5-6 (Prime Computer); Edstrom, Dep. Tr. 4-5 (Amdahl Corporation); *see also* MacNaughton Study, DX 1634, pp. 1-3. AMI "often" or "usually" charges its customers a single price for parts

IBM's 308X product line consists of 14 models with a performance power range of 3 to 30 million instructions per second (MIPS), and a price range of $960,000 (3083E) to $6,300,000 (3084Q). *See* DX 1799. Upgrades are net priced only if they involve the removal and return of parts (such as TCMs)[8] from the upgraded computer. The majority of MIPS upgrades,[9] *see* Levin, Tr. 78, and numerous memory upgrades[10] are net priced by IBM.

Upgrades which do not require the removal of TCMs or other parts (such as the 3083J to 3081K model upgrade) are not net priced and are optionally available from IBM on an SWRPQ basis; *i.e.*, without IBM's labor included.[11] An upgrade purchased on an

---

and labor when it installs an upgrade or feature for its customers. *See, e.g.*, Lewis, Tr. 492, 502, 1735; Smith, Tr. 613-14; Loria, Tr. 676. UCS (Ultimate Computer Services), one of AMI's principal competitors, "normally" also charged a single price for an installed upgrade or feature. LaRocca, Tr. 1164-65.

[8] TCMs (Thermal Conductor Modules) will be discussed in greater detail below. *See infra* pp. 278-280, 283. Here I note only that the recovery of TCMs from 308X computers being upgraded was a major reason for implementing the net pricing policy. *E.g.*, Armstrong, Tr. 902.

[9] The following 308X model (MIPS) upgrades are net priced: 3081 D to 3801 K; 3081 G to 3081 K; 3081 GX to 3081 KX; 3081 K to 3084 Q; 3081 KX to 3084 QX; 3082 16 and 24 to Q 48; 3082 X 16 and X 24 to X 48; 3083 B to 3083 J; 3083 B to 3081 G; 3083 B to 3081 K; 3083 BX to 3081 GX; 3083 BX to 3083 JX; 3083 E to 3083 B; 3083 E to 3083 J; 3083 EX to 3083 BX; 3083 JX1 to 3081 KX1. *See* PX 127 at 39895; *see also* Levin, Tr. 78-79; Allen, Tr. 291-292.

[10] The following 308X memory upgrades are net priced: 3081G 16, G 24, and G 32 to G 48; 3081 G 16, G 24, and G 32 to G 64; 3081 K 16, K 24 and K 32 to K 48; 3081 K 16, K 24 and K 32 to K 64; 3081 GX1 to 3081 GX2; 3081 GX2 to 3081 GX3; 3081 KX1 to 3081 KX2; 3081 2 to 3081 KX3; 3083 BX0 to 3083 BX1; 3083 BX2 to 3083 BX3; 3083 EX to 3083 EX1; 3083 EX2 to 3083 EX3; 3083 JX0 to 3083 JX1; 3083 JX2 to 3083 JX3; 3084 Q 32, Q 48 and Q 64 to Q 96; 3084 Q 32, Q 48 and Q 64 to QC8; 3084 QX 3 to 3084 QX 4; and 3084 QX 4 to 3084 QX 6. *See* PX 127 at 39895; *see also* Levin, Tr. 78-79. Allen, Tr. 291-292.

[11] It is unclear what "SWRPQ" stands for. As Mr. Gibson of IBM stated, "don't ask me what an SWRPQ means, it really doesn't mean anything. But it is simply the MES or an RPQ for that matter priced without IBM labor. . . ." PX 377 at 89707.

SWRPQ basis may be installed by third parties, such as AMI, or by IBM, if the customer chooses and pays for the service. All 308X channel upgrades and many memory upgrades are available on an SWRPQ basis.

AMI asserts that IBM's net pricing of 308X upgrades constitutes an unlawful tying arrangement under Section 1. As ultimately defined by AMI, the alleged tying product consists of the IBM parts necessary to fabricate and install the equivalent of 308X net priced upgrades, and the tied product consists of the engineering services involved in the fabrication and installation of such upgrades.[12] AMI's Post-Trial Reply Memorandum of Law (hereinafter "A.R.M.") at 9.

I.

A tie exists when a seller refuses to sell a product (the tying product) alone and insists that any buyer who wants it must also purchase another product (the tied product). *See* L. Sullivan, Handbook of the Law of Antitrust § 150, at 431 (1977). "[T]he Sherman Act does not prohibit 'tying', it prohibits 'contract[s] . . . in restraint of trade'." *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 21 n. 34, 104 S.Ct. 1551, 1563 n. 34, 80 L.Ed.2d 2 (1984). Only a tying arrangement which imposes an unreasonable restraint of trade is unlawful.

---

[12] In its complaint, AMI defined the tying product as the parts needed to upgrade IBM large scale main frame computers, and the tied product as IBM installation service. Complaint, at ¶ 28(a). During the course of litigation, AMI also defined the tied product as the engineering labor necessary to reconfigure IBM large scale main frames, *see* Plaintiff's Proposed Findings of Fact and Conclusions of Law (hereinafter "A.P.F.") at ¶ 151, or the engineering services necessary to perform net priced reconfigurations of IBM's large scale main frame computers. *See* Plaintiff's Post-Trial Memorandum of Law (hereinafter "A.M.") at 44.

IBM's net pricing applies only to certain upgrades sold new by IBM. Reconfiguration activities include services as to which IBM's net pricing policy does not apply (*e.g.*, upgrades with used parts, removals and reinstallations of customer-owned parts or upgrades, cycle conversions and refurbishments). *See, e.g.*, PX 105, p. 76525; Levin, Tr. 64; Gibson, Dep. Tr. 35-36. When used by AMI to refer to the tied product, the term reconfiguration must mean only those activities to which net pricing applies.

Certain tying arrangements are *per se* unlawful under the antitrust laws; that is, they are deemed unreasonable as a matter of law and "no specific showing of unreasonable competitive effect is required." *Fortner Enterprises v. United States Steel*, 394 U.S. 495, 498, 89 S.Ct. 1252, 1256, 22 L.Ed.2d 495 (1969) ("*Fortner I*"); *see generally Northern Pacific Railway Co. v. United States*, 356 U.S. 1, 5, 78 S.Ct. 514, 518, 2 L.Ed.2d 545 (1958) (respecting *per se* unlawful arrangements in general: "[T]here are certain agreements or practices which because of their pernicious effect on competition and lack of any redeeming virtue are conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use.").[13] A tying arrangement which does not warrant *per se* condemnation may be found to violate the Sherman Act under a rule of reason analysis.[14] *Hyde*, 466 U.S. at 17-18, 104 S.Ct. at 1560-61; *Bogus v. American Speech & Hearing Ass'n*, 582 F.2d 277, 287 (3d Cir.1978). *Per se* rules and the rule of reason are mechanisms "employed 'to form a judgment about the competitive significance of the restraint.' " *NCAA*, 468 U.S. at 103, 104 S.Ct. at 2961 (quoting *National Soc'y of Prof. Engineers v. United States*, 435 U.S. 679, 692, 98 S.Ct. 1355, 1365, 55 L.Ed.2d 637 (1978)).

---

[13] "The rationale for *per se* rules in part is to avoid a burdensome inquiry into actual market conditions in situations where the likelihood of anticompetitive conduct is so great as to render unjustified the costs of determining whether the particular case at bar involves anticompetitive conduct." *Hyde*, 466 U.S. at 15 n. 25, 104 S.Ct. at 1560 n. 25 (citations omitted). However, the *per se* doctrine in tying cases has always required an elaborate economic analysis. *See id.* at 34, 104 S.Ct. at 1569 (O'Connor, J., concurring). "[T]here is often no bright line separating *per se* from Rule of Reason analysis. *Per se* rules may require considerable inquiry into market conditions before the evidence justifies a presumption of anticompetitive conduct." *National Collegiate Athletic Ass'n v. Bd. of Regents of U. of Oklahoma*, 468 U.S. 85, 104 n. 26, 104 S.Ct. 2948, 2961 n. 26, 82 L.Ed.2d 70 (1984).

[14] Four justices in *Hyde*, including Chief Justice Burger and Justice Powell, asserted that all tying arrangements should be analyzed under the rule of reason. 466 U.S. at 35, 104 S.Ct. at 1570 (O'Connor, J., concurring). Many scholars agree. *See Will v. Comprehensive Accounting Corp.*, 776 F.2d 665, 671 n. 2 (7th Cir.1985), *cert. denied*, 475 U.S. 1129, 106 S.Ct. 1659, 90 L.Ed.2d 201 (1986).

II.

AMI contends that IBM's net pricing of 308X upgrades is *per se* unlawful. A.M. at 15. To establish a *per se* tying violation, plaintiff must show: 1) the existence of two separate and distinct products or services and an agreement conditioning the sale of the tying product to the purchase of the tied product; 2) that the seller possesses sufficient economic power with respect to the tying product to restrain free competition appreciably in the market for the tied product; and 3) that the seller has thereby foreclosed a "not insubstantial" amount of interstate commerce in the tied product. *See, e.g., Hyde*, 466 U.S. 2, 104 S.Ct. 1551; *Fortner I*, 394 U.S. 495, 89 S.Ct. 1252; *Columbia Pictures Indus. v. Redd Horne, Inc.*, 749 F.2d 154 (3d Cir.1984); *Bogus*, 582 F.2d 277 (3d Cir.1978). The Supreme Court's decision in *Hyde*, 466 U.S. 2, 104 S.Ct. 1551, suggests that an inquiry into the legality of a tying arrangement under the *per se* rule requires an elaborate economic analysis.

I conclude that IBM's net pricing policy does not warrant *per se* condemnation. AMI has failed to establish that IBM possesses the requisite market power. AMI has also failed to prove that it, or anyone, has been foreclosed from a viable business opportunity as a result of IBM's conduct.[15] My finding that AMI has not been

---

[15] Notwithstanding net pricing, buyers could acquire new 308X upgrade parts from IBM, without IBM installation service included, on an over the counter (OTC) basis. *See, e.g.*, Levin, Tr. 89-97; PX 455; PX 456; PX 457. IBM contends that its sale of the alleged tying and tied products separately precludes application of the *per se* rule against tying. Post Trial Oral Argument, Chesler, Tr. 69-70; *see Northern Pacific*, 356 U.S. at 6 n. 4, 78 S.Ct. at 518 n. 4. ("Of course, where the buyer is free to take either product by itself there is no tying problem even though the seller may also offer the two items as a unit at a single price."). However, even when the products are sold separately, the *per se* rule may apply if the option is "not viable." *Advance Business Systems & Supply Co. v. SCM Corp.*, 415 F.2d 55, 62 (4th Cir.1969), *cert. denied*, 397 U.S. 920, 90 S.Ct. 928, 25 L.Ed.2d 101 (1970).

It appears that IBM's OTC prices for TCMs were not available until late 1983. *See* PX 609; PX 261; PX 269; Smith, Dep. Tr. 158-59. Once established, the OTC prices for 308X upgrade parts typically exceeded the sum of IBM's price for the net priced upgrade and the value of the parts removed from the upgraded machine. Levin, Tr. 89-97; PX 128A-P. For example, in 1983, a 308D machine sold for $3 million and a 308K sold for $3.6 million. A D to K net priced upgrade sold

deprived of a viable business opportunity implicates several of the concerns underlying the Sherman Act and the *per se* rule against tying in particular.

A.

Application of the *per se* rule against tying requires proof that the seller possesses economic power in the market for the tying product. The degree or form of economic power which must be established has been described in various ways. The Supreme Court, however, has consistently held that proof of the existence of monopoly power is not required.

In *Times-Picayune Publishing Co. v. United States*, 345 U.S. 594, 611, 73 S.Ct. 872, 882, 97 L.Ed. 1277 (1953), in an attempt to define the requisite economic power, the Court referred to "the wielding of monopolistic leverage", or the exploitation by a seller of "his dominant position in one market to expand his empire into the next." This language was "construed" in *Northern Pacific* as requiring only "sufficient economic power to impose an appreciable restraint on free competition in the tied product." 356 U.S. at 11, 78 S.Ct. at 521. "[T]he source from which the power is derived and whether the power takes the form of a monopoly or not" were said to be irrelevant. *Id.* In *Fortner I*, the Court explained that "economic power over the tying product can be sufficient even though the power falls far short of dominance and even though the power exists only with respect to some of the buyers in the market." 394 U.S. at 502-03, 89 S.Ct. at 1258. For purposes of assessing economic power, the Court stated that the proper focus is "whether the seller has the power to raise prices, or impose other burdensome terms such as a tie-in, with respect to any

---

for $600,000. PX 455. The OTC price for the parts required to perform D to K upgrade was $4.58 million. *Id.* The price structure encouraged buyers to buy net-priced upgrades rather than the parts alone for installation by third parties, such as AMI. Although the disparity between the OTC parts prices and the prices for net-priced 308X upgrades was not always as great as in the D to K example (especially when the value of the parts removed and returned to IBM is taken into account), *see* PX 456; PX 457; PX 458, and may have allowed for third-party installation in special circumstances, the OTC option was not, on the whole, sufficiently viable to preclude application of the *per se* rule. This does not mean that the OTC pricing structure was itself unreasonable or unlawful. *See infra*, pp. 296-297.

appreciable number of buyers within the market."[16] 394 U.S. at 504, 89 S.Ct. at 1259. In *United States Steel Corp. v. Fortner Enterprises, Inc.*, 429 U.S. 610, 620, 97 S.Ct. 861, 867, 51 L.Ed.2d 80 (1977) ("*Fortner II*"), the Court repeated that there is no requirement "that the defendant have a monopoly or even a dominant position throughout the market for a tying product." Instead, the focus of attention is on "whether the seller has the power, within the market of the tying product, to raise prices or to require purchasers to accept burdensome terms that could not be exacted in a completely competitive market." *Id.* (footnote omitted). "In short," said the Court, the issue is "whether the seller has some advantage not shared by his competitors in the market for the tying product." *Id.*

In its most recent tying decision, the Court emphasized the importance of proof that the seller has "some special ability—usually called 'market power'—to force a purchaser to do something that he would not do in a competitive market." *Hyde*, 466 U.S. at 13-14, 104 S.Ct. at 1558-59. The focus is on the seller's power to "force" or "coerce":

> [T]he essential characteristic of an invalid tying arrangement lies in the seller's exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms.

Id. at 12, 104 S.Ct. at 1558. Proof of a seller's power to force involves proof that the seller enjoys "significant market power", *id.* at 26, 104 S.Ct. at 1566, or a "dominant market position." *Id.* at 27, 104 S.Ct. at 1566.

---

[16] Despite the language contained in *Fortner I*, the Court later observed that the treatment of the law on market power in *Fortner I* was in some ways less "far-reaching" than in *Northern Pacific and United States v. Loew's Inc.*, 371 U.S. 38, 83 S.Ct. 97, 9 L.Ed.2d 11 (1962) (copyright), which could be read to make actual market power irrelevant. *See United States Steel Corp. v. Fortner Enterprises, Inc.*, 429 U.S. 610, 620 n. 13, 97 S.Ct. 861, 868 n. 13, 51 L.Ed.2d 80 (1977) ("*Fortner II*") (quoting Dam, 1969 Supreme Court Review, 25-26). *Fortner I* did not change the requirement of proof of "market power in the sense of power over price." *Id.*

1.

AMI relies in part on evidence of IBM's market share to support its contention that IBM possesses sufficient economic power to compel application of the *per se* rule. Market share is calculated by reference to a relevant product and geographic market.[17] Briefly stated, "[t]he outer boundaries of a product market are determined by the reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it." *Brown Shoe Co. v. United States*, 370 U.S. 294, 325, 82 S.Ct. 1502, 1523-24, 8 L.Ed.2d 510 (1962). "[T]he purpose of market definition is to determine whether market power exists"; therefore, "market definitions must account for all factors affecting the ability of the [defendant] to raise prices or restrict competition." *Weiss v. York Hosp.*, 745 F.2d 786, 826 (3d Cir.1984), *cert. denied*, 470 U.S. 1060, 105 S.Ct. 1777, 84 L.Ed.2d 836 (1985).

For purposes of determining IBM's economic power with respect to the tying product, AMI defines the relevant market as the market for large scale main frame computers. *E.g.*, A.P.F. at ¶ 251. According to AMI, a large scale main frame computer is one that is, at the time of its introduction into the market place, among the largest in memory capacity, the fastest in computing speed, and the most expensive of computers available. Levin, Tr. 752. Large scale mainframes, says AMI, typically are priced in excess of $1.75 million.[18] Levin, Tr. 753. IBM's revenues from the sale of new large scale mainframes (including MES sales)[19] from 1981 to 1985 exceeded $16 billion (1981: $1.918 billion; 1982: $3.07 billion; 1983: $3.589 billion; 1984 $3.807 billion; 1985: $3.666 billion). PX 482; PX 15; PX 48. Based

---

[17] There is no dispute concerning AMI's definition of the relevant geographic market.

[18] Prior to trial, AMI defined large scale mainframe computers as "electronic data processing systems with a typical systems price in excess of $1 million". *See* AMI's Answers to IBM's Third Set of Interrogatories, No. 2 (Dec. 31, 1986).

[19] The MES sales included in the calculation consist of IBM sales of MIPS upgrades (model upgrades), memory upgrades, channel upgrades, and other features. A.P.F. at ¶ 3, 14. Between 1982 and 1986, IBM's revenues from the sale of 308X MIPS upgrades exceeded $2 billion. DX 3001B.

on AMI's definition of what constitute non-IBM large scale main frames[20] and its calculation of the revenues received by firm's selling such products, IBM's share of revenues of all sales of new large scale mainframes was 70.2% in 1981, 78.0% in 1982, 79.0% in 1983, 78.6% in 1894, and 75.9% in 1985. PX 482; PX 15, PX 48. Also based on AMI's definition of what constitute non-IBM large scale main frames, IBM's share of total shipments of large scale main frames (presumably shipment of MESs is included in IBM figures) was 61.0% in 1981, 70.1% in 1982, 76.0% in 1983, 74.5% in 1984, and 65.0% in 1985. PX 483; PX 15, PX 48.

Standing alone, AMI's market share evidence tends to show that IBM enjoys substantial economic power. However, AMI's definitions of large scale mainframes and the relevant market are flawed in several respects and tend to overstate IBM's market share and power.[21]

AMI does not expressly include upgrades of large scale main frame computers in its relevant market definition, but does include IBM's revenues from the sale of 308X upgrades in its calculation of IBM's share of the purported relevant market. If it is AMI's contention that upgrades do not belong in the relevant market, then AMI's calculation of IBM's share of the relevant market must be reduced accordingly. However, upgrades of large-scale main frame computers belong in the relevant market. Professor Richard C. Levin, AMI's expert economist, included parts and labor required to upgrade large scale main frame computers in the relevant market consisting of large scale main frame computers. Levin, Tr. 750-51. According to Prof. Levin, the parts and services required for an upgrade, and the

---

[20] Although AMI includes IBM MES sales in its calculation of IBM large scale mainframe revenues, it does not appear to include non-IBM upgrade sales in the calculation of non-IBM large scale mainframe revenues. If such upgrades are sold by IBM's competitors, it is a mistake to exclude the revenues they generate.

[21] The flaws are discussed more fully below. Here I note only that AMI's market share data are limited to new large scale mainframe sales, whereas AMI's alleged relevant market is not limited to new large scale mainframes. It consists of new as well as used large scale mainframes. IBM's share of sales of new computers only partly reflects IBM's power in a market consisting of all largescale mainframes, including those owned by leasing companies and marketed in competition with IBM.

upgrade that they together produce, can under certain circumstances be a substitute for a new machine; and "the prices of upgrades are constrained to some extent by the. . . prices of computers themselves." *Id.* If upgrades were excluded from the relevant market definition, AMI would have to be excluded from the market, since AMI does not sell large scale mainframes. *See* Levin, Tr. 792.

At trial, Prof. Levin acknowledged that the International Data Corporation report on which AMI relied to determine what computers are large scale main frame computers, *see* Levin, Tr. 783, omits "scores, indeed hundreds of computers available in the marketplace today which have as much or more MIP capacity" as some IBM computers which appear in the survey. Levin, Tr. 786-87; 789. AMI's reliance on IBM documents (PX 15; PX 48) also raises doubts concerning the reliability of AMI's market share data, since it is unclear that the documents were intended fully to reflect IBM's competition from other manufacturers of large scale mainframe computers. To the extent that AMI's market share evidence reflects the IDC's classification scheme, such evidence tends to overstate IBM's share of the relevant market because it fails to include non-IBM revenues from products which may fairly be described as large scale mainframe computers.

Even if AMI's market share evidence properly accounted for all sales of new large scale mainframes, a relevant market consisting solely of large scale main frame computers (and upgrades) is unduly narrow for purposes of assessing IBM's economic power and tends to overstate it.

Substitutes exist for every product and a relevant market definition "cannot meaningfully encompass that infinite range;" therefore, "[t]he circle must be drawn narrowly to exclude any other product to which, within reasonable variations in price, only a limited number of buyers will turn." *Times-Picayune*, 345 U.S. at 612 n. 31, 73 S.Ct. at 882 n. 31 (including general and classified newspaper advertising and excluding advertising placed in other communications media in New Orleans). However, it is also improper "to require that products be fungible to be considered in the relevant market." *United States v. E.I. duPont deNemours & Co.*, 351 U.S. 377, 394, 76 S.Ct. 994, 1006, 100 L.Ed. 1264 (1956) (including cellophane and all

flexible wrapping materials in same relevant market in Section 2 case). The relevant market definition must include all "commodities reasonably interchangeable by consumers for the same purposes. . . ." *Id.* at 395, 76 S.Ct. at 1007. It must include all producers which "have the ability--actual or potential--to take significant amounts of business away from each other." *Smithkline Corp. v. Eli Lilly & Co.*, 575 F.2d 1056, 1063 (3d Cir.), *cert. denied*, 439 U.S. 838, 99 S.Ct. 123, 58 L.Ed.2d 134 (1978). Prof. Levin substantially agreed with these statements of the considerations pertinent to market definition, *see* Levin, Tr. 171, and acknowledged that products may be in the same relevant market when they are alternatives only "under certain circumstances", or when the pricing of one product constrains the pricing of another only "to some extent." *Id.* at 750-51.

To support its relevant market definition, AMI relies heavily on IBM documents which AMI contends demonstrate that IBM recognizes a separate market for large scale main frame computers. *See* A.M. at 76-77. IBM "Significant Win/Loss Reports" (SWLRs) were monthly reports prepared by IBM's marketing divisions and furnished to IBM's Chairman and members of IBM's Management Committee. Armstrong, Tr. 909-910; Levin, Tr. 756, 800. The SWLRs stated, for each reported competitive situation, the IBM product offering, the competitive product offering(s) faced by IBM, and whether IBM won or lost the sale. Levin, Tr. 756. Prof. Levin examined a sample of SWLRs covering the periods December 1980 through September 1981, April and June 1983, December 1984, January 1985, February 1985, May 1985, and June 1985. *Id.* at 759. For each reported situation in which the IBM product offering was a large scale mainframe (a 3033 product, a 308X product, or MES upgrade of such a product), Prof. Levin classified the reported competitive alternative as a large scale or mid-scale computer, based on the International Data Corporation's "Large Scale Computer Census" classification scheme. *Id.* at 757-59. In 281 out of 288 (or 97.6%) reported cases in which the IBM offering was a large scale mainframe, the competitive alternative was also a large scale mainframe or an upgrade to a large scale mainframe. *Id*; PX 480. The competitive alternatives included leasing company placements of new

or used large scale mainframes, and leasing company offerings of upgrades or reconfigurations of large scale mainframes.[22]

The usefulness of IBM's SWLRs and Prof. Levin's analysis of them to support AMI's relevant market definition is limited by several considerations. IBM regarded SWLRs as poor and unrepresentative indicators of actual market activity, and discontinued their use. *See* Armstrong, Tr. 910-13; *see also* Quinlan, Tr. 1050-53, 1057-59; DX 2201.[23] Nevertheless, assuming that SWLRs accurately reflect actual market activity, they show a large number of situations in which non-IBM large scale main frame computers (included by AMI in its relevant market definition) competed with IBM computer offerings which AMI does not include in its market definition.[24] AMI's reliance on only those instances in which the large scale mainframe offering was an IBM computer, rather than a non-IBM computer, is inconsistent with the relevant market definition it advances. Finally, it is worth remembering that "it is not the perceptions of manufacturers but those of consumers which are most salient in the determination of market boundaries." *Columbia Metal Culvert Co. v. Kaiser Aluminum & Chemical Corp.*, 579 F.2d 20, 30 (3d Cir.) *cert. denied*, 439 U.S. 876, 99 S.Ct. 214, 58 L.Ed.2d 190 (1978) (footnote omitted) (Section 2).

---

[22] AMI relies on other IBM documents also reflecting competitive situations involving IBM offerings of large scale mainframes or upgrades to such computers. Although it is not clear who examined the documents, AMI contends that they yield results consistent with Prof. Levin's conclusions based on IBM SWLRs. *See* A.F. ¶¶ 273-275.

[23] With respect to documents in the preceding footnote, AMI acknowledges that IBM's SWLR's reflect a relatively small percentage of competitive situations. According to the documents, IBM shipped 83 computers per month, and reported 30 situations per month. The documents do not establish the number of competitive situations involving IBM which did not result in a sale and which were not reported. Nor is it clear that every competitive situation which resulted in a sale was reported.

[24] The same is true with respect to the competitive activity AMI asserts is reflected in the numerous IBM documents neither sampled nor discussed by Prof. Levin. It appears that large scale mainframes competed with products outside AMI's market definition in approximately fifteen percent of all competitive instances in which at least one of the offerings was a large scale mainframe.

The evidence compels the conclusion that AMI's asserted market definition is untenably narrow. AMI improperly excludes from its market definition a host of products which provide reasonable alternatives to purchases of large scale mainframe computers and upgrades and constrain IBM's ability to raise the prices of these products or exclude competition. The result is that IBM's market power is significantly less than AMI contends, even before evidence relevant to assessing IBM's economic power other than demand substitutability evidence is considered.

a.

AMI's proposed market definition fails to account for the competition IBM faces from companies offering large scale main frame computers for lease. AMI acknowledges the presence of such competition, *see* A.P.F. at ¶ 21 and the evidence cited therein,[25] but fails to incorporate it into the relevant market definition. An economically meaningful market definition must include all the products and services that actually or potentially compete with IBM products in question or constrain IBM's pricing and product decisions. Levin, Tr. 171.

Leasing companies, such as Comdisco and CMI, purchase computer equipment from manufacturers and lease it to users. From a consumer's standpoint, they are an alternative source of computer equipment. They compete with IBM. *See* Lewis, Tr. 452-3; LaRocca, Tr. 1209; Phillips, Tr. 1586; Pontikes, Dep. Tr. 16; Walker, Dep. Tr. 19-20. Leasing companies own approximately 40 percent of all large scale mainframe computers, as defined by AMI. Levin, Tr. 764-65, 858-9. Prof. Levin testified that IBM's share of the market would be reduced by an amount he was unable to determine if leasing companies were taken into account in AMI's market definition. *See* Levin, Tr. 837-38, 764, 804. If leasing company transactions involving computers comparable and in many cases identical to the large scale mainframes marketed by IBM are included in the relevant

---

[25] Prof. Levin acknowledged that "[l]easing companies are competitors of IBM when they market IBM manufactured equipment in competition with IBM." Levin, Tr., 764-65; *see also id.* at 758.

market, and the market is measured on a "transaction basis",[26] IBM's share of the market, according to Prof. Almarin Phillips, who testified for IBM as an expert economist, drops to 34.4 percent. Phillips, Tr. 1600-11; DX 1923. Prof. Phillips testified that such a share would not reflect "overwhelming" activity in the market on IBM's part. *Id.* at 1611.

AMI relies on *United States v. Aluminum Company of America*, 148 F.2d 416 (2d Cir.1945) to support its exclusion of leasing companies from the relevant market. *See* A.R.M. at 79-86. In *Alcoa*, upon consideration of the defendant company's market position over a period of years and based on the conclusion that the production of "secondary" ingot was as much within Alcoa's control as the production of the "virgin" ingot from which it was derived, the Court decided to disregard "secondary" competition in its calculation of Alcoa's market share. 148 F.2d at 425. Unlike the situation in *Alcoa*, there is evidence in this case that leasing companies, which also lease non-IBM equipment, effectively compete with IBM and constrain IBM's ability to set prices or exclude competition in the market for new large scale main frame computers. *See e.g.*, A.P.F. ¶ 29 and the evidence cited therein. Leasing companies, therefore, properly belong in the relevant market applicable to this litigation. *See ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F.Supp. 423, 428 (N.D.Cal.1978), *aff'd sub nom. Memorex Corp. v. IBM Corp.*, 636 F.2d 1188 (9th Cir.1980), *cert. denied*, 452 U.S. 972, 101 S.Ct. 3126, 69 L.Ed.2d 983 (1981) ("*Memorex II*").[27]

---

[26] Prof. Levin also has measured market shares on a transaction basis, Levin, Tr. 842-45, which appears to be an acceptable measurement standard. *See* DX 1665 p. 3.

[27] Even if leasing companies were to be excluded from the relevant market definition, so that IBM's market share would not decline accordingly, the significant constraints they impose on IBM's market behavior must enter into any proper assessment of the significance of IBM's market share. *See In re IBM Peripheral EDP Devices Antitrust Litigation*, 481 F.Supp. 965, 979 (N.D.Cal.1979), *aff'd sub nom. Transamerica Computer Co. v. IBM Corp.*, 698 F.2d 1377 (9th Cir.), *cert. denied*, 464 U.S. 955, 104 S.Ct. 370, 78 L.Ed.2d 329 (1983).

b.

As shown below, AMI also improperly excluded from its relevant market definition other products and services which offer potential buyers reasonable and viable alternatives to the purchase (or leasing) of large scale mainframe computers or upgrades to such computers. Their availability in the marketplace constrains IBM's power to command noncompetitively high prices and restricts IBM's ability to impose unwanted or burdensome terms on an appreciable number of buyers interested in acquiring computer systems or enhancing the performance of existing computer systems. These alternatives also pressure IBM to keep up with the market's growing technological demands. *See e.g.*, Phillips, Tr. 1585.

Thus, AMI incorrectly excluded many smaller capacity computers manufactured both by companies which do and companies which do not also manufacture large scale mainframe computers as defined by AMI. *See* Levin, Tr. 796-800. AMI excludes these products from the relevant market in part because the IDC report on which Prof. Levin relied did not classify them as large scale mainframes, and in part because AMI contends that there is only limited evidence of substitutability between these smaller computers and large scale mainframes. *Id.*, at 759-60, 782. For purposes of this action, the reliability of the IDC report is suspect. *See supra* p. 271. The evidence shows sufficient competition between the smaller computers and large scale mainframes to require their inclusion in the relevant market.

At trial, marketing executives and users of complex computer systems acknowledged a trend toward "distributed data processing", in which smaller capacity computers are used in conjunction with or in place of large scale mainframes. Mr. Quinlan, President of IBM's North Central Marketing Division, discussed the increasing phenomenon, perhaps beginning in the 1970's, of "hierarchal systems" and "distributed systems" involving combinations of large computers, smaller computers, and terminals. Quinlan, Tr. 1043-44. Such systems provide alternatives to the acquisition of large scale main frames, as the situation involving J.C. Penney illustrates. *Id.* He also referred to instances in which the smaller computers (which, in fact, tend to be quite large) are "clustered" to look like and perform functions comparable to those performed by IBM's large scale

mainframes. He referred to numerous instances (*e.g.*, involving DuPont Research and Carrier Corporation) in which the smaller computers (excluded from AMI's market) competed successfully against IBM large scale mainframes. *Id.* at 1050-53, 1058-59; *see* DX 2201. Mr. Armstrong, IBM's Senior Vice President and Director General of IBM Europe, gave several examples of such competition, including the New York Stock Exchange's replacement of its IBM System 360 Model 50 computer (included in AMI's market) with over 200 Tandem "minicomputers" (excluded from AMI's market). Armstrong, Tr. 897-98. An executive of Core States Financial Corporation testified that his company moved away from using IBM large scale mainframes for at least one application, and opted for a system of multiple computers manufactured by Tamden and not included in AMI's market. Shah, Tr. 1516-20. A Hewlett Packard executive stated that his company's HP 3000 product line of computers (excluded from AMI's market) competes with IBM 308X computers in part because of a trend toward decentralized processing. Ikezoye, Dep. Tr. 4-6. An NCR official expressed a similar view. Nielson, Dep. Tr. 4-5; *see* English, Tr. 1557, 1565 (illustration of trend toward decentralized processing, involving Federal Mogul Corporation); DX 1786. A study entitled "Long Range Computing Strategy Report" prepared for Kent State University by Peat, Marwick, Mitchell and Company in 1984 discussed the "trend away from older, large single processing systems . . . towards systems based on large number of small processors with local intelligence, linked by communications." DX 360, pp. 4-5, 49-52. Kent State's Director of Informations Systems testified that Kent State ultimately replaced a Burroughs model 6812 computer (included in AMI's market) with an IBM 3081D, but not without seriously considering purchasing a system of clustered DEC VAX 11/785 computers (excluded from AMI's market). McKinley, Tr. 1487-90, 1494-90.

There were many instances in which systems of smaller computers provided alternatives to large scale mainframe computers; the instances involved wide-ranging computer applications in different commercial settings. Such competition cannot be considered marginal. IBM considered the competition significant. In 1975, it reviewed one hundred of IBM's largest accounts and concluded that a significant number of customers, "almost two-thirds, were

concluding to off-load their systems, their large systems to competitive distributed processing systems," Armstrong, Tr. 887-94; DX 1632, none of which are included in AMI's market. Prof. Levin's assertion that such competition is limited and therefore excludable from the market is unsupported by the record.

The same is true with respect to fault tolerant processing, in which smaller capacity computers are used essentially in parallel to ensure continuous processing capability for applications frequently performed by large scale mainframes. AMI excludes fault tolerant computers from its relevant market on the theory that they occupy a "specialized market nitch." *See* A.P.F. at ¶ 269; Levin, Tr. 802. The weight of the evidence, however, was to the contrary and compels their inclusion in the market. *See* Shah, Tr. 1517-21, 1524, 1530; Quinlan, Tr. 1055-56, 1059-63.

c.

AMI's relevant market also improperly fails to include peripheral products such as storage devices, input/output devices, disk drives or disk tapes. Storage devices store data for later access by the central processing unit (CPU). Input devices feed data to the CPU; output devices receive or accept data from the CPU. Disk drives and desk tapes may perform all three functions.

AMI acknowledges that "[e]xternal data storage devices are in a limited sense technological substitutes for the internal memory of a large scale mainframe." A.P.F. at ¶ 278. AMI excludes storage devices from the relevant market in part because it contends that they are not economic substitutes in the sense that their prices constrain the pricing power of a hypothetical monopolist of large scale mainframes. Levin, Tr. 761-62. AMI takes substantially the same position with respect to computer software, the programs that enable computer systems to function and perform a variety of tasks, A.P.F. at ¶ 279, which AMI excludes from the market. AMI's assertions are inconsistent with the evidence. Mr. Beckwith, IBM's Director of Service, testified that IBM always considers the peripheral products offered by competitors when IBM arrives at a "competitive price" for its computers. Beckwith, Tr. 1279-83. Input/output devices particularly are among the various "components" IBM examines to determine the price of its products. *Id.* Competitive software offerings

also influenced IBM pricing decisions, Beckwith, Tr. 1279-83, and at least one computer user testified concerning the "trade offs" between software and hardware. McKinley, Tr. 1493.

There is a more fundamental reason for including peripheral products and software (systems software and application software) in the relevant market than the fact that they constrain IBM's pricing decisions with respect to large scale mainframes. As discussed below, peripheral products and software provided significant and reasonable alternatives to a wide variety of upgrades and modifications of large scale mainframes. *See, e.g.*, Staire, Dep. Tr. 19-20; Armstrong, Tr. 876-78. Other such alternatives which AMI's market definition also failed to take into account include smaller computers used to offload applications from large scale mainframes (including computers smaller than those previously discussed); devices for adding memory, speed, or capacity to processors; and computer service bureaus, which are companies providing data processing services to others. Further, AMI's market definition, to the extent that it includes upgrades at all, appears limited to MIPS upgrades. A.P.F. at ¶ 291. Such a limitation also is unwarranted and inconsistent with the evidence.

According to Charles I. Staire, Consultant to B.F. Goodrich, there are "many different ways," to enhance the performance capabilities of a computer system. Staire, Dep. Tr. 3-4, 19-20. Mr. Armstrong testified that a buyer interested in increasing the capacity of a computer system will consider "all of [the] elements that make up the computer systems in order to determine what is the most efficient way, most economical way to solve his problem." Armstrong, Tr. 876-78. Among the possibilities are increases in the computer's memory capacity and channel speed, and improvements in the computer software or peripheral devices like disk drives or disk tapes. *Id.* Mr. McKinley of Kent State added disk storage and main memory components as an alternative to upgrading the CPU of a 3081D computer. McKinley, Tr. 1500-01. Bipin Shah of Core States Financial Corporation postponed an upgrade or the purchase of a larger computer by improving "inefficiencies in the software," in communications, and in disk drive utilization. Shah, Tr. 1523. Thomas English of Federal Mogul testified that his company has "upgraded the CPUs from one model to the next, but usually before [the company] get[s] to that it's a memory upgrade, it is adding

channels, it is adding other I/O [input/output] devices, disk, tape, so forth." English, Tr. 1565-66. Gary Smith of CMI testified that alternatives to upgrading a computer, in the sense of adding a MIPS upgrade, include replacing the computer, adding a second computer, adding additional memory, adding additional I/O devices, and off-loading work to other computer systems including those operated by service bureaus. Smith, Tr. 605-06. Robert Van Hellemont of Thomson McKinnon Securities stated that, "[r]ather than upgrading," a user can "add increased memory," add "increased discs or tape storage," offload "application to service [bureaus]", or offload "applications onto some number of other smaller computer systems." Van Hellemont, Dep. Tr. 7, 76-79. Numerous other witnesses testified similarly. Harry Myland, one of the founders of AMI, acknowledged that a user "has a variety of options" to upgrading a CPU, including "memory upgrades or feature designs," "channel adds," and "internal speed improvements." Myland, Dep. Tr. 62, 187. Such components, enhancements, and available services permit users at least to postpone buying upgrades of CPUs or larger (new or used) computers for a significant period of time. Phillips, Tr. 1587. A market definition which ignores such competition is unrealistic.

d.

A box swap, which typically refers to the purchase of a new machine and the sale of an old one, is the "functional" and physical equivalent of an upgrade. *See* Levin, Tr. 170-72, 766. Box swaps can also be performed with used machines; for example, with machines owned by leasing companies. Allen, Dep. Tr. 59-60; Myland, Dep. Tr. 189-90; Van Hellemont, Dep. Tr. 76-77. Users seek box swaps or upgrades at roughly the same time in the life cycles of computers actually in place. *See* Lewis, Tr. 1718-19, 1727-28. Although AMI has shown that a box swap is not an alternative to a 3081K to 8084Q upgrade, box swaps are viable alternatives to most MIPs upgrades and should therefore be included in the relevant market definition.[28]

---

[28] Prof. Levin acknowledged that box swaps can under certain circumstances be alternatives to upgrades, Levin, Tr. 182, and appeared to include box swaps in the relevant market. Levin, Tr. 766. *But see Id.* at 743-49. AMI excludes box swaps.

e.

Upgrades using parts provided by the customer, or by a leasing company from a machine of one of its lessees, also provide computer users with important alternatives to new upgrades or new machines. *See* Levin, Tr. 744-45. At his deposition, Mr. Allen acknowledged that the existence of 308X donor parts impacted on a user's decision to purchase new upgrades from IBM. Allen, Dep. Tr. 964. As with box swaps, upgrades using parts taken from other machines may yield physically and functionally identical results to the purchases of new upgrades. Levin, Tr. 171, 182-83. The viability of used-parts upgrades as an alternative to upgrades performed with new parts may be limited, in practical terms, by the relative scarcity of necessary used parts, especially those needed for MIPs upgrades. Levin, Tr. 110-12; Allen, Tr. 339-40. However, the evidence does not support their total exclusion.[29] *See, e.g.*, Levin, Tr. 182-83. For example, between 1983 and 1986, AMI performed 237 (out of 244) 308X memory upgrades or downgrades, and 137 (out of 138) 308X channel upgrades or downgrades, with parts removed from and reinstalled on existing equipment. *See* DX 1363, pp. 8792-94, 9276-78; 8977; DX 1894D; DX 1894 B; DX 1894C; DX 1363, pp. 8543-44; DX 1895C. CMI also goes into the "user community" to purchase "memory, features, machines, and upgrades". Loria, Dep. Tr. 228-29; *see also* Nolin, Dep. Tr. 85-86 (AMI); LaRocca, Tr. 1165-67 (UCS).

f.

IBM's market share declines steeply from the figure suggested by AMI if the relevant market definition is expanded, as the evidence requires, to include (at least to some extent) leasing companies, smaller capacity computers, peripheral products (storage devices, input-output devices, etc.), memory upgrades, channel upgrades, software, and service bureaus. Prof. Phillips, IBM's market expert, while not attempting to measure IBM's share of a strictly defined

---

[29] Including used-part upgrades and service bureaus, and to a lesser extent, box swaps, in the relevant market may raise analytical problems similar to those involved in the decision to include leasing companies in the market. *See In re IBM Peripheral EDP Devices*, 481 F.Supp. at 979. As with leasing companies, I find that a meaningful market analysis must take these alternatives into account, whether or not they are included in the relevant market definition.

market, *see* Phillips, Tr. 1594-95, established that IBM accounted for: 20.3 percent of the "value of shipments of [electronic data processing] products worldwide from U.S. plants plus software and service revenues"; 30.8 percent of 1984-1985 shipments of general purpose digital computers with the unit value" exceeding $250,000 (recorded at FOB platform; the actual installed retail price of such computers exceeded $1 million); and 32.2 percent of the "data processing revenues from the top one hundred firms who [had] data processing revenue" for 1984 and 1985.[30] Phillips, Tr. 1596-1600; DX 1749, DX 1751; DX 1753. AMI did not attempt to measure IBM's share of any market other than the untenably narrow relevant market it advanced at trial. Although market share is but one measure of a firm's economic power and should be considered in light of other market factors, it seems clear that market shares in the range suggested by Prof. Phillips do not support a finding that a company possesses sufficient economic power to apply the *per se* rule against tying arrangements. *E.g.*, *Hyde*, 466 U.S. at 26-27 & n. 43, 104 S.Ct. at 1565-66 & n. 43 (30 percent share in market for tying product not enough to constitute market power); *Times-Picayune*, 345 U.S. at 611-13, 73 S.Ct. at 881-83 (30 to 40 percent not enough); *Ball Memorial Hosp., Inc. v. Mutual Hospital Ins. Inc.*, 784 F.2d 1325, 1330-31, 1334-37 (7th Cir.1986) (over 50 percent not enough).

2.

The analysis so far has focused on what may be described as demand substitutability or cross-elasticity. A thorough analysis of a firm's economic power also takes into account such considerations as: supply substitutability; other aspects of market structure, general market performance; and the market performance of the defendant company. An examination of important market and industry

---

[30] Prof. Phillips' figures tend to understate IBM's market share to the extent that he includes competition from maintenance companies, which IBM contends belong in the relevant market, I.P.F. at ¶ 103, and AMI correctly excludes. The figures tend to overstate IBM's market share to the extent that, in DX 1749, they fail to reflect revenues from leasing companies. *See* Phillips, Tr. 1597-98. Prof. Phillips offered no opinion concerning the proper definition of the relevant market. Phillips, Tr. 1584, 1594.

characteristics further supports the conclusion that IBM lacks the requisite economic power.

The absence of significant entry barriers in a given market or industry suggests that firms operating in the market or industry lack market power, even when they enjoy appreciable market shares. *See, e.g. United States v. Waste Management, Inc.*, 743 F.2d 976, 983-84 (2d Cir.1984); *Ball Memorial Hosp.*, 784 F.2d at 1335.[31] Conversely, "[t]he greater the barriers faced by a new entrant, the more probable it is that control of a particular market share would enable defendant to exercise monopoly power."[32] *In re IBM Peripheral*, 481 F.Supp. at 976 (footnote omitted). The evidence established substantial entry[33] and growth of competition in the data processing industry embraced by the correctly defined relevant market.

A number of companies other than IBM manufacture a wide range of computers having the processing power of IBM large scale mainframe computers. Several of these (including Digital Equipment Corporation, Data General, Hewlett Packard, Tandem, and NCR) were admittedly excluded from the report upon which Prof. Levin relied to determine what constitute large scale mainframes. *See* Levin, Tr. 786-87, 789; 796-800. AMI has not offered evidence of the market shares any of these individual competitors enjoy.

The number of computer leasing companies competing with IBM in the market for large scale mainframes has grown during recent years. Kenneth Pontikes, a founder of Comdisco, one of the world's

---

[31] Prof. Phillips testified that "even if a firm had 100 percent of the market today, if there aren't any impediments to entry, that would effectively preclude that firm from having market power." Phillips, Tr. 1577-78. I do not need to evaluate this opinion.

[32] I agree with AMI that "the capacity 'to force' [for purposes of invoking the *per se* rule against tying] does not require the existence of monopoly power in a defined relevant market." A.M. at 36; *see supra*, p. 270. The market and industry characteristics I examine here are indicia of market power in general, not just monopoly power. *See, e.g.*, Phillips, Tr. 1577-1600.

[33] There is evidence of firms departing the market as well, in part reflecting the rapid technological developments taking place in the market: "As [technology] provides a new opportunity, it usually forecloses an old one." Phillips, Tr. 1581-82.

largest leasing companies,[34] Robertson, Tr. 707, testified that there were over 500 leasing companies in operation in 1986, Pontikes, Dep. Tr. 17, up from only about a "handful" in 1970. *See* DX 2168, p. 7. The comparable growth of the Computer Dealers and Lessors Association supports Mr. Pontikes' assertion. *See* DX 2168, p. 7; LaRocca, Tr. 1207. Comdisco enjoyed considerable growth between fiscal years 1982 and 1986, when it reported a net profit of $79 million on revenues totaling $902 million (Comdisco reported net profits of $29 million on revenues of $415 million for fiscal year 1982). Pontikes, Dep. Tr. 6-7. CMI, another major leasing company, reported revenues of $140 million for 1982, and $284.7 million for 1985. DX 1073, p. 4; DX 2168, p. 21; Smith, Dep. Tr. 187-88; DX 1071 p. 6.

The number of companies, like AMI, engaged in the business of converting and modifying computer equipment also has grown in recent years. AMI itself illustrates the relative ease of entry into the field. It was formed in 1973 with an initial investment of $1,500. Allen, Dep. Tr. 216-18; Ade, Dep. Tr. 92; Myland, Dep. Tr. 4, 63. AMI reported earnings of $15 million for the period 1973 to 1981, and over $53 million in the time period covered by the complaint. *See* DX 1821A. In 1984, AMI employed approximately 30 "field engineers",[35] DX 1922, and declined an acquisition offer by CMI for $20-$30 million. Myland, Dep. Tr. 440-46. UCS, which engaged in the conversion and modification of computer equipment, was founded in 1972 by five persons and an initial capitalization of a "couple [of] thousand dollars." LaRocca, Tr. 1161-64, 1168-75. In 1985, TRW, Inc. acquired UCS for $7.5 million up front plus a contingency

---

[34] In terms of IBM list price, Comdisco owns approximately $7 billion in IBM equipment. Pontikes, Dep. Tr. 11. Comdisco has a larger inventory of 308X computers than it ever had of 303X computers. *Id.*

[35] The level of employee skill required for a firm to compete successfully is a relevant entry barrier consideration. *See In re IBM Peripheral EDP Devices*, 481 F.Supp. at 976. According to Mr. Chisholm of AMI, anyone capable of doing "field-engineering" type work is capable of doing "installation, discontinuance, upgrades and refurbishment." Chisholm, Dep. Tr. 44. Mr. Myland of AMI testified that "[a]nyone with a knowledge a little over basic doorbell circuitry . . . can do feature enhancement, modification, and additions on IBM equipment." Myland, Dep. Tr. 59.

payment estimated in excess of $3 million over a three-year period. *Id.* at 1177-79. UCS's business experienced its greatest growth and success during the time period covered by AMI's complaint.[36] *Id.*; *see also* Harnett, Tr. 1750-51.

3.

The characteristics of the data processing industry and IBM's market performance also undermine AMI's contention that IBM possesses the economic power necessary to impose *per se* liability. Technological progress or innovation in an industry generally reflects the presence of economic competition in the market, and is generally inconsistent with the wielding of undue economic power by a firm or group of firms in the industry. *See, e.g., Greyhound Computer Corp. v. IBM Corp.*, 559 F.2d 488, 497 (9th Cir.1977), *cert. denied*, 434 U.S. 1040, 98 S.Ct. 782, 54 L.Ed.2d 790 (1978). The data processing industry has enjoyed impressive technological growth in recent years. "[E]normous technological change in computer hardware has occurred in recent years . . . and customers are now able to obtain substantially increased computer power at less cost than was ever possible before." DX 360, p. 10; *see also*, DX 380, p. 21. In a 1986 report, Burroughs, a company which competes with IBM, *see* A.P.F. at ¶ 283, characterized the "information systems industry" as "highly competitive" and observed that competition in recent years has "intensified as the members of the industry, including many new competitors, have increased the number of products offered." PX 188, p. 5.[37] Control Data Corporation, which also competes with IBM, *see* A.P.F. at ¶ 281, reported in 1986 that "[t]he market for general purpose electronic digital computer systems [was] highly competitive," PX 245, p. 3, and that "[r]apid technological change in the computer industry [had] intensified in recent years as a result of shortened product life cycles and increasing foreign and domestic competition." *Id.* at 5.

---

[36] A survey conducted on IBM's behalf concluded that the number of companies engaged in "conversion, upgrade, downgrade activity" grew from 10 in 1970 to nearly 100 in 1985. *See* Phillips, Tr. 1589.

[37] While recognizing the presence of competition in the industry, Burroughs described IBM as the "dominant competitor". *Id.*

IBM has contributed greatly to the rapid rate of technological innovation in the industry. Prof. Levin acknowledged that "IBM's success in the data processing industry is attributable in part to its role as one of the leading innovators in [the] economy." Levin, Tr. 866. IBM's development of the TCM technology central to this litigation provides a good illustration. IBM spent over a billion dollars and over one thousand man-years of labor to develop the TCM and TCM board.[38] Toole, Tr. 1008. As Prof. William J. Baumol, who testified as an expert economist for IBM, said, IBM's development of the TCM technology was "forced by market pressures, which were demanding quicker, easier, simpler, more reliable installation, which competitors were approximating at the very same time and which IBM was forced to do." Baumol, Tr. 1658-59.

IBM's price/performance improvement record also reflects the presence of strong competitive forces in the relevant market. In 1952, IBM announced its 701 computer, which had a price-performance measurement of .02 MIPS per $1,000,000. In 1981, IBM announced its 3081K, which employed TCM technology and had a price/performance ratio of 3.1 MIPS per $1,000,000--an increase of over 1500 percent. Granito, Tr. 939-40; DX 1793; *see also* DX 2021. The 3081K computer represented an increase of more than 120 percent over IBM's 303U computer, announced four years earlier. *See* DX 1793. Further, IBM's computers were priced with sensitivity toward the "competitive environment" in which the company operated. Ross, Tr. 1364, 1390-91. Prof. Levin acknowledged that one measure of market power is a firm's ability "to move the price [of its products] around without constraint from products outside the market."[39] Levin, Tr. 781-82. IBM lacked such power.

---

[38] IBM's research and development expenditures for 1982-1985 totalled $15.5 billion and consumed approximately 9 percent of IBM's gross income over that period of time. DX 1924.

[39] Prof. Levin asserted that another measure of a firm's market power is its rate of return, measured on a stock market valuation basis. Levin, Tr. 860-61. Courts have relied on evidence of a defendant's profit record on the theory that persistent excess profits are inconsistent with market competition. *See, e.g., duPont*, 351 U.S. at 404, 76 S.Ct. at 1012. The evidence concerning IBM's rate of return on stock to stockholders does not warrant the conclusion that IBM possesses market power.

4.

AMI's contention that IBM possesses sufficient power to justify *per se* condemnation of IBM's net pricing policy relies heavily on the asserted "uniqueness" of the TCM technology incorporated into the 308X (and 3090) product line.[40] Even absent a showing of market dominance, the requisite economic power may, under special circumstances, be inferred from the desirability or uniqueness of the tying product. *See, e.g., United States v. Loew's*, 371 U.S. 38, 45, 83 S.Ct. 97, 102, 9 L.Ed.2d 11 (1962).

IBM obtained a patent for its TCM technology in 1976. PX 598; Granito, Tr. 978-79. TCMs are the "building blocks" or "brains" of the 308X and 3090 computers. Pontikes, Dep. Tr. 29-30; Allen, Dep. Tr. 373-75. They are the critical components of the computer hardware needed to perform 308X upgrades (especially MIPS upgrades); that is, they are the critical components of the alleged tying product. According to AMI, "[t]he uniqueness and sufficiency of economic power of the tying product, parts (TCMs) for net priced 308X MIPS upgrades, are independently established by the existence of patented TCM technology." A.M. at 40.

Contrary to AMI's assertion, neither the uniqueness of a product nor the fact that it is patented alone establishes the requisite economic power. *Hyde*, 466 U.S. at 37 n. 7, 104 S.Ct. at 1571 n. 7 (O'Connor, J., concurring) ("A common misconception has been that a patent or

---

Compare DX 1215 (IBM) *with* DX 1352 (AMI).

[40] AMI also relies on the fact that large numbers of customers have accepted the tie. *See* A.M. at 40. This argument requires proof that, at least as to an appreciable number of buyers in the relevant market, net pricing imposed an unwanted or burdensome condition of sale. *See Fortner I*, 344 U.S. at 503-04, 89 S.Ct. at 1259-60. As AMI acknowledges, the argument also requires evidence that "no factor other than the economic power of the seller explains this acceptance." A.M. at 35; *see Fortner II*, 429 U.S. at 618 n. 10, 97 S.Ct. at 867 n. 10; *see also Ungar v. Dunkin' Donuts of America, Inc.*, 531 F.2d 1211, 1225 (3d Cir.) *cert. denied*, 429 U.S. 823, 97 S.Ct. 74, 50 L.Ed.2d 84 (1976) (proof of acceptance of a burdensome or uneconomic offer of a "tied" product is some evidence of coercion, but such proof alone does not establish, prima facie, the coercion element of a tying claim.) Accepting the continued viability of the reasoning in *Fortner I*, AMI's argument fails for lack of evidentiary support, as is discussed below. *See infra* pp. 291-292.

copyright, a high market share, or a unique product that competitors are not able to offer suffices to demonstrate market power.") At least one Court has rejected "any absolute presumption of market power for copyright or patented product . . . ."[41] *A.I. Root Co. v. Computer Dynamics, Inc.*, 806 F.2d 673, 676 (6th Cir.1986). *But see Digidyne Corp. v. Data General Corp.*, 734 F.2d 1336, 1340 n. 4 (9th Cir.1984) ("[W]hen the tying product is patented or copyrighted . . . sufficiency of economic power is presumed."), *cert. denied*, 473 U.S. 908, 105 S.Ct. 3534, 87 L.Ed.2d 657 (1985).[42] "[A] patent holder has no market power in any relevant sense if there are close substitutes for the patented product." *Hyde*, 466 U.S. at 37 n. 7, 104 S.Ct. at 1571 n. 7 (O'Connor, J., concurring); *see also Northern Pacific*, 356 U.S. at 10 n. 8, 78 S.Ct. at 520 n. 8 ("Of course it is common knowledge that a patent does not always confer a monopoly over a particular commodity.") Similarly, one Court has held that "factual uniqueness" is insufficient as a matter of law to establish market power. *Will*, 776 F.2d at 672; *accord*, *Fortner I*, 394 U.S. at 505 n. 2, 89 S.Ct. at 1259 n. 2 ("Uniqueness confers economic power only when other competitors are in some way prevented from offering the distinctive product themselves."); *see also Fortner II*, 429 U.S. at 620-21, 97 S.Ct. at 867-68 (the kind of uniqueness considered relevant in tying product cases requires proof that the seller possesses some special "advantage not shared by his competitors"). If competitors can design and offer a package similar to defendant's product for a similar cost, there is no barrier and no market power, and hence no special

---

[41] At most, a patent is prima facie evidence of the necessary market power. *See Times-Picayune*, 345 U.S. at 611 n. 30, 73 S.Ct. at 882 n. 30, quoting *Standard Oil Co. of Cal. v. United States*, 337 U.S. 293, 307, 69 S.Ct. 1051, 1059, 93 L.Ed. 1371 (1949). *But see Hyde* 466 U.S. at 37 n. 7, 104 S.Ct. at 1571 n. 7. Countervailing evidence must be considered.

[42] The court in *Digidyne* also stated that the requisite economic power may be inferred from the tying product's uniqueness, and that, therefore, "it should seldom be necessary in a tie-in sale case [involving a unique product] to embark upon a full-scale factual inquiry into the scope of the relevant market for the tying product and into the corollary problem of the seller's percentage share in that market." *Id. Digidyne* has been criticized on several grounds, *see e.g.*, *Data General Corp. v. Digidyne Corp.*, 473 U.S. 908, 105 S.Ct. 3534, 87 L.Ed.2d 657 (White, J., dissenting from denial of certiorari); *Will*, 776 F.2d at 673 n. 4, and I decline to follow it.

advantage for purposes of establishing "uniqueness". *Will*, 776 F.2d at 673.

IBM freely licenses its TCM patent. *See* Granito, Tr. 987. Further, the great majority of TCM's are owned and controlled by the leasing companies, which compete with IBM and which own 90 percent of all 308X machines sold by IBM. *See* DX 1847; PX 25. AMI and other companies engaged in the business of upgrading IBM 308X computers use TCMs owned by the leasing companies to perform conversion and modifications. Companies such as Amdahl, Burroughs, Cray, CDC, and others, which AMI acknowledges compete with IBM in its narrowly defined market for large scale mainframe computers, *see*, *e.g.*, A.P.F. at ¶ ¶ 273-64, presumably manufacture computer parts comparable to IBM's TCMs in terms of price and processing power. Even if no such comparable products exist, AMI has not shown that IBM's competitors are somehow prevented from developing products to rival the TCM.

I conclude that the factual uniqueness of IBM's TCMs, which admittedly represent a major technological advance and reflect the increasing demand for technological innovation in the data processing industry, does not warrant an inference that IBM possesses sufficient economic power to impose *per se* liability. The inference of market power is especially unwarranted where IBM's share of the relevant market is not exceptionally high and other market factors suggest the presence of economic competition in the field.

B.

"[W]ithin [a] broad market, well-defined submarkets may exist which, in themselves, constitute product markets for antitrust purposes." *Brown Shoe Co. v. United States*, 370 U.S. 294, 325, 82 S.Ct. 1502, 1524, 8 L.Ed.2d 510 (1962). AMI also seeks to establish the requisite economic power by reference to a relevant submarket comprised of the parts and services required for the conversion and upgrade of large-scale mainframe computers.[43] A.P.F. at ¶ 285.

---

[43] AMI also refers to a submarket consisting of upgrades and modifications of IBM large scale mainframe computers. *See* A.M. at 57, 81. A submarket definition limited to IBM's own product line is untenable. Prof. Levin denied the existence of such a submarket. Levin, Tr. 772-74. Courts have generally rejected market

The boundaries of a relevant submarket "may be determined by examining such practical indicia as industry or public recognition of the submarket as a separate economic entity, the product's peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors." *Brown Shoe*, 370 U.S. at 325, 82 S.Ct. at 1524. The evidence precludes a finding that parts and services required for the conversion and upgrade of large mainframes constitute a submarket distinct from the market consisting of large scale mainframe computers.[44]

There was considerable evidence of competition between, and cross-elasticity of demand for, upgrades and a variety of products, including the large scale mainframes themselves. *See supra* pp. 271-277. For example, Mr. Chisholm of AMI acknowledged that, "[a]s a general matter, a new box is an alternative to an upgrade. . . ." Chisholm, Dep. Tr. 34. Upgrades and large scale mainframes are reasonable alternatives serving similar data processing needs. The price-sensitivity evidence is especially important.[45] Upgrade prices constrain the prices of new large scale processors; IBM set its net upgrade prices to equal the price differentials of its 308X computers so that customers would not buy one product at the exclusion of the other. *See e.g.*, *supra* note 15; DX 1861; *see also* Levin, Tr. 163-64.

---

definitions limited to the defendant's products. *See, e.g., Seidenstein v. National Medical Enterprises Inc.*, 769 F.2d 1100, 1106 (5th Cir.1985); *Domed Stadium Hotel, Inc. v. Holiday Inns, Inc.*, 732 F.2d 480, 488 (5th Cir.1984); *Edward J. Sweeney & Sons, Inc. v. Texaco, Inc.*, 637 F.2d 105, 117-18 (3d Cir.1980), *cert. denied*, 451 U.S. 911, 101 S.Ct. 1981, 68 L.Ed.2d 300 (1981); *Coleman Motor Co. v. Chrysler Corp.*, 525 F.2d 1338, 1349 (3d Cir. 1975). Further, the facts of this case do not support a conclusion contrary to the general rule, as my discussion of AMI's proffered submarket definition shows.

[44] Prof. Levin failed to recognize a distinction between a market consisting of conversions and upgrades of large scale mainframes, and a market comprised of the large scale computers themselves. Levin, Tr. 774-76.

[45] In *Columbia Metal Culvert Co. v. Kaiser Aluminum & Chemical Corp.*, 579 F.2d 20, 28 (3d Cir.), *cert. denied*, 439 U.S. 876, 99 S.Ct. 214, 58 L.Ed.2d 190 (1978) upon which AMI relies, evidence that price differentials did not significantly impact on customer preferences supported the argument that distinct submarkets existed.

Finally, IBM upgrades and mainframes are built at the same manufacturing plants and are generally installed by comparably skilled engineers.

AMI's evidence of IBM's economic power within the alleged submarket also is inadequate. AMI asserts that IBM possesses power in the relevant submarket because IBM performed 2,070 308X MIPS upgrades (of which 1,874 were net-priced), while AMI performed only 16 (of which 11 were equivalent to IBM net-priced upgrades). A.P.F. at ¶ 299; *see also* PX 465; Levin, Tr. 110-11. Were there proof of the existence of a relevant submarket consisting solely of upgrades and conversions, or especially of a submarket comprised exclusively of upgrades and conversions of IBM computers, then such evidence might support the inference of power AMI seeks to draw. However, AMI has failed to establish the existence of the prerequisite submarket.

C.

There are separate grounds for concluding that *per se* condemnation of net pricing is unwarranted. The amount and value of labor involved in performing 308X MIPS upgrades is insignificant compared to the value of the requisite upgrade parts. As a result, AMI has not been foreclosed from a viable business opportunity by IBM's policy.

1.

A major design objective for the TCM and TCM board technology (the TCMs are plugged into the TCM board) was to enable alterations to 380X computers to be performed relatively quickly and with little labor. Granito, Tr. 925-27, 950, 979-81. There is ample evidence that IBM attained the desired result. The TCM technology allowed 308X upgrades to be performed considerably faster, with fewer parts involved, and with less risk of malfunctions than was possible with previous technologies, including the technology embodied in IBM's 303X product line. *See* Granito, Tr. 951-57; Brong, Dep. Tr. 80; Broomall, Dep. Tr. 68; Morrow, Dep. Tr. 163-65. For example, the labor required to add 1.1 MIPS to a 3033S processor (to convert it to a 3033N) was up to 20 times greater than the labor required to add 2 MIPS to a 3083E processor (to convert it to a 3083B). *See* Chisholm, Dep. Tr. 62-68; DX 1799.

The resulting and dramatic decline in the amount and value of labor required to perform 308X upgrades has redefined the niche in the computer market occupied by AMI. This decline has eliminated business opportunities once available. By itself, such a result does not offend the antitrust laws. The antitrust laws were enacted for "the protection of competition, not competitors."[46] *Brown Shoe*, 370 U.S. at 320, 82 S.Ct. at 1521. The value of the labor content of 308X MIPS upgrades is de minimus for antitrust purposes.

IBM's Director of Finance, Alan Ross, prepared a chart setting forth, among other things, IBM's calculations of the value of the labor content of all 308X MIPS upgrades performed during the years relevant to the complaint. *See* DX 1805A. Mr. Ross used 1985 MES prices and the 1985 hourly rate for field installation labor. Based on Mr. Ross's calculations, the value of the labor content of the upgrades averaged 1.2 percent of the net MES price. *See* DX 3001. With respect to all but the D to K upgrade, the value of the labor content equalled or was less than 1.2 percent of the net price of the MES.[47] *Id.*

At his deposition, Larry Allen, AMI's President, stated that if IBM sold the parts required for an E to B upgrade for $417,600 (*i.e.*, at a price reflecting a reduction of $2,400 from the net MES price of $420,000, to account for the value of IBM labor not provided), it would not present AMI with a viable opportunity to compete with IBM. Allen, Dep. Tr. 938-39; *see also* Allen, Tr. 371. AMI would not be able to compete with IBM if the value of the labor content of the E to B upgrade were .6 percent of the net MES price for the upgrade. *See also* Allen, Dep. Tr. 968-69 (B to K upgrade). Nor would AMI,

---

[46] *See also ILC Peripherals v. International Business Machines Corp. (Memorex I)*, 448 F.Supp. 228, 233 (N.D.Cal.1978) ("Just as buggy whip manufacturers had to face the fact that the invention of the automobile meant the end of their market as they had known it, this new disk storage technology will have a serious impact on the market for customer-removable disk products. However, the antitrust laws were not designed to insure the maintenance of the status quo for any competitor.")

[47] The value of the labor content also exceeded 1.2 percent of the value of the net priced MES with respect to the CX to EX upgrade, *see* DX 3001, but the number of such upgrades performed (2) is insignificant.

according to Mr. Allen, be able to compete with IBM if the value of the labor content of a 308X MIPS upgrade equalled .9 percent of the net upgrade price. Allen, Dep. Tr. 968 (B to J upgrade); Allen, Tr. 372. Contrary to his deposition testimony, Mr. Allen stated at trial that the same parts prices and labor content figures would, in fact, present AMI with a viable business opportunity. *See* Allen, Tr. 369-372. I regard Mr. Allen's trial testimony on this subject as hyperbolic. I credit his deposition testimony, and not his trial testimony.

At trial, Mr. Allen also testified that AMI would be presented with a viable business opportunity if it were able to buy 308X MIPS upgrade parts from IBM without IBM labor included at prices reflecting a labor content value equal to 1.2 percent of the net MES price. Allen, Tr. 373-74. Mr. Allen's testimony contradicted his earlier statement that no service organization, including AMI, could survive on a 1.87 percent return on its investment in parts needed to perform upgrades. *See* DX 2066.[48] I do not credit Mr. Allen's testimony that AMI could survive on a 1.2 percent rate of return on its investment in upgrade parts. *See also infra* note 68. There was no other evidence that AMI could survive on such a rate of return.[49] If AMI were to buy the upgrade parts from IBM at IBM's "MES price without labor"[50] (*see* DX 1805A, Column 6), it would not, on the

---

[48] In July, 1984, during settlement discussions, AMI declined IBM's offer to sell AMI 308X upgrade parts without IBM labor included at prices below IBM's net MES prices. Mr. Allen wrote: "On 3081 quantities ordered on your contract as presented, AMI would spend over three million dollars. Our maximum return on this purchase would be $65,000. That makes a 1.87 percent return on our investment. I am quite confident that no service organization can survive on that profit margin." DX 2066; *see* Allen, Tr. 374-75. DX 2066 is admissible for impeachment purposes under Fed.R.Evid. 408. *See, e.g., Reichenbach v. Smith*, 528 F.2d 1072, 1075 (5th Cir.1976) ("Rule 408 codifies a trend in case law that permits cross-examination concerning a settlement for purpose of impeachment."); *Stainton v. Tarantino*, 637 F.Supp. 1051, 1080-82 (E.D.Pa.1986).

[49] At his deposition, Mr. Allen asserted that he could not state what AMI would regard as an acceptable rate of return on its investment in parts. *See* Allen, Tr. 378-79.

[50] Such prices are lower than IBM's net MES prices, against which Mr. Ross's labor content percentages are calculated. Thus, the figures in DX 1805A, Column

whole, be able to perform the upgrades and charge customers what IBM charges for the same upgrades on a net price basis and still recover what AMI would regard as an acceptable profit.[51]

Were IBM required to price and sell 308X upgrade parts and labor separately, it would not be required to sell the parts at a price lower than the difference between the MES net prices and Mr. Ross's figures for the value of the labor content of 308X upgrades, provided that Mr. Ross's calculations allow IBM to recover its direct and indirect labor costs, plus a reasonable profit.[52] IBM 308X upgrade parts sold at such prices would not present AMI with a viable business opportunity. Unless Mr. Ross's estimates are unduly low, AMI has not been foreclosed from a viable business opportunity as a result of net pricing.

AMI argues that "[t]he labor content of net priced MIPS upgrades, as estimated by IBM, is significantly understated," A.T.M. at 46, and that IBM's estimated value of the labor content is "unrealistically low." *Id.* at 47.[53] Of course, where two products are sold only as a

---

7, slightly understate what AMI's rate of return would be if it bought IBM parts at the SWRPQ price and installed upgrades at prices charged by IBM for net priced upgrades.

[51] I reach this conclusion, and my final decision, without consideration of DX 2069 and AMI's response thereto. However, I note that, on October 10, 1985, AMI rejected IBM's settlement offer to sell AMI numerous net priced MESs without IBM labor included at prices consistent with Mr. Ross's calculations. *See* A.P.F. at ¶¶ 310, 312; DX 2069. Although Fed.R.Evid. 408 limits the admissibility of evidence of settlement discussions, AMI included the fact that it declined IBM's 1985 settlement offer in its Proposed Findings of Fact and, thus, may have waived any objection to its admissibility.

[52] Prof. Levin acknowledged that, if IBM's labor content figures enable IBM to recover all costs associated with the properly defined service component of upgrades, plus a profit, then IBM would be under no obligation to set its prices at a level at which AMI could earn a profit. Levin, Tr. 218-19; *see also* Baumol, Tr. 1697; Ross, Tr. 1398-99.

[53] AMI does not assert that IBM's labor component prices are "predatory"; *i.e.*, below cost. AMI suggests, however, that IBM transfers profits from its sale of the parts required to perform upgrades to its sale of the labor services involved. A.R.M. at 39. There is no evidence to support this assertion.

package, it is difficult to ascertain the true cost of either. *See Hyde*, 466 U.S. at 15, 104 S.Ct. at 1559.

a.

Mr. Ross's figures are based on the pricing methodology that is used by IBM to determine its SWRPQ prices for memory and model upgrades. Ross, Tr. 1369, 1381-82; *see also* Granito, Tr. 984; Beckwith, Tr. 1284-96, 1298, 1358. IBM sells the J to K MIPS upgrade (which does not require the removal of TCMs) optionally on an SWRPQ basis at the price listed on Mr. Ross's chart. It is IBM's actual SWRPQ price. IBM used the same method to determine the value of the labor component of the other MESs which IBM sells only on a net priced basis. *See* Ross, Tr. 1881-82. Thus, although the calculations for upgrades other than the J to K upgrade were made for trial purposes, the methodology employed was not. As Mr. Ross's chart explains, the labor content of every MIPS upgrade is determined by: 1) taking the average installation hours for each upgrade from IBM's field service cost estimates; 2) multiplying those hours by the 1985 field installation rate for IBM labor; 3) adding 7 percent for travel time and 10 percent for contingency; and 4) subtracting $100 for handling. *See* Ross, Tr. 1378-79, 1381-83, 1396-97; DX 1805A; DX 2215.

As AMI contends, IBM's figures underestimate the value of the alleged tied product because Mr. Ross's estimates account only for field installation labor. AMI's definition of the tied product includes all engineering labor required to perform the upgrade, including the engineering services performed prior to the installation of the upgrade. The fabrication work not taken into account by Mr. Ross's estimates includes planning (*e.g.*, determining the computer's E.C. level)[54] and diagnostic work, and the revision of the (upgraded) computer's microcode.[55] Levin, Tr. 64-66. Fabrication work may

---

[54] The EC (engineering change) level of a machine must be determined before building the upgrade. The EC levels of machines may differ even within the same model. *See* Allen, Tr. 251-52. IBM installs ECs at no charge to the customer. Granito, Tr. 963-65.

[55] Microcode contains programs which support each configuration of a 308X computer and control various computer functions. Allen, Tr. 251-52; Zartler, Dep.

require a different degree of skilled labor than is required by field installation work. *See* Gibson, Dep. Tr. 333-34; Beckwith, Tr. 1316-17.

Although the amount and quality of fabrication work needed to perform 308X upgrades is relatively small and considerably less than it was with respect to prior technologies as a result of the TCM technology and the automated Machine Level Control System, *see* Ross, Tr. 1384-85; Bigando, Tr. 1236-39; Granito, Tr. 961-62, 976-77; Beckwith, Tr. 1285, 1300-01, 1316-17, an adjustment must be made to Mr. Ross's figures to account for the work.[56] (I discuss the necessary adjustments below. *See infra* p. 287). Otherwise, and except for what AMI calls the "IBM test", which IBM does not do, IBM's estimate of the labor component of 308X upgrades, reflected in Mr. Ross's calculations, includes all the activities which AMI asserts are necessary to perform the upgrade. *See* Beckwith, Tr. 1292-94.[57]

AMI also contends that the hourly rate contained in Mr. Ross's estimates understates the actual value of the labor ("installation" and "fabrication") required to perform upgrades, in part because the $165/hr rate reflects IBM's standard hourly rate for maintenance services (on a time and materials basis) and not the rate IBM used when it performed upgrades on an RPQ basis. A.M. at 47; *see* Lewis, Tr. 499-500. AMI ignores the fact that the hourly rate used by Mr. Ross was the rate actually used by IBM to determine the SWRPQ price of the J to K upgrade. Further, IBM uses the same customer

---

Tr. 63. In order to reconfigure a 308X computer, it is necessary to modify the machine's microcode. *See* Allen, Tr. 251-53, 267-70. Such modification may involve the alteration of one to sixty microcode diskettes. *Id.* at 252-53, 268-69.

[56] IBM argues that fabrication work, to the extent not already included in Mr. Ross's figures, is trivial; *see* IBM's Proposed Findings of Fact and Conclusions of Law at ¶ 260; however, I do not think that it can be overlooked.

[57] IBM's estimates of the labor hours required to upgrade 308X computers are generally the same as AMI's, and in some cases exceed AMI's estimates—even though IBM does not include (and AMI does include) the time needed to perform what AMI describes as "IBM test" and "Determining Parts". *See* DX 1580 (especially, p. 90654); DX 1805; PX 447-58; PX 447-60; PX 447-62; PX 447-68; *see also* Chisholm, Dep. Tr. 62-67; *cf.* DX 1926.

engineers to perform upgrades as it uses to do maintenance work. Beckwith, Tr. 1284-96, 1298, 1358; Granito, Tr. 984. The $165/hr rate enables IBM to recover its labor costs plus a profit. Ross, Tr. 1381-82. The prices used by Mr. Ross are IBM's real prices for the services provided. *See* Beckwith, Tr. 1284-94.

AMI argues that IBM's $165/hr rate is significantly lower than the rate reflected by the prices AMI and IBM obtained for "reconfiguration" services using donor or customer-owned parts.[58] During the relevant years, AMI performed eleven upgrades equivalent to 308X MIPS upgrades using customer-owned parts, and received considerably more than $165/hr. *See* PX 466; Levin, Tr. 110-11. AMI's evidence that IBM charged and obtained upgrade prices reflecting hourly labor rates greater than Mr. Ross's estimates, however, is unpersuasive.[59]

AMI asserts that IBM would have charged Comdisco $50,000 to perform a "Q-split", making IBM's effective hourly rate $1000. A.P.F. at ¶ 156; *see* Lewis, Tr. 1714-15; *see also* DX 2268; DX 1579. IBM's hours to perform a Q-split are 50.6. *See* DX 1579. A "Q-split" involves separating an IBM Q mainframe into two model 3081K computers operating independently. *See* DX 2268. There is no evidence that IBM performed the Q-split (AMI did it for $30,000), Lewis, Tr. 492-93, 1714-15, and a Q-split is not an upgrade. What IBM would charge for the labor component of a reconfiguration which is not a model upgrade is of little relevance to the issues in this litigation. More importantly, AMI's calculation of IBM's effective

---

[58] AMI contends that this is the "best method" to determine the value of the allegedly tied engineering services, A.M. at 44, since it reflects customer demand. AMI argues that "[Mr.] Ross's estimates do not . . . reflect the value of reconfiguration service in the marketplace." A.R.M. at 32. However, IBM's SWRPQ price for the J to K upgrade, which is based on a $165 hourly rate for installation labor, is IBM's actual competitive price in the market.

[59] At best, AMI has shown that on several occasions it was able to perform the equivalent of IBM 308X MIPS upgrades while charging substantially more for its labor services than IBM. However, IBM showed that, based on AMI admissions (.9 rate of return and 3 percent inventory costs, *see infra*), AMI would have had no viable business opportunity even if it would have been able to command the higher prices and perform the upgrades. *See* DX 3000.

hourly rate incorrectly assumes that the $50,000 price reflected only IBM's labor charges; in fact, IBM's labor charges accounted for less than twenty percent of the total price. *See* DX 1579.

AMI also established that IBM requested $200,000 to perform a "Q to K/K to Q" reconfiguration for Comdisco, *see* Lewis, Tr. 1714-15, which AMI estimates requires 85.5 hours of engineering labor. *See* PX 447-68; Allen, Tr. 264-66. IBM estimates 105 hours. *See* DX 2281 at 2; DX 2282 at 2; DX 2283 at 2; DX 2284 at 2; DX 2268A (the exhibits show the FE hours involved in the requisite activities). Comdisco paid AMI $80,000 to do the "Q to K/K to Q" reconfiguration. Lewis, Tr. 1714-15. AMI implies, but does not assert, that IBM's hourly rate for services required to perform a "Q to K/K to Q" reconfiguration exceeds $2000. However, the $200,000 price quotation included the price of necessary parts; the effective hourly rate was about $200. *See* DX 1579 at 3; DX 2281 at 2; DX 2282 at 2; DX 2284 at 2; DX 2268A; DX 2279.

AMI also contends that Mr. Ross's estimates understate the true labor content of 308X MIPS upgrades because they "do not take account of the fact that a net priced MES sold by IBM includes the labor content of one year of warranty service." A.M. at 47. AMI's argument appears to be that the labor involved in performing 308X MIPS upgrades (previously defined as "installation" and "fabrication" labor) also includes the labor component of the warranty maintenance service provided with IBM net priced upgrades. Although AMI has relied on various definitions of the tied product during the course of litigation, *see supra* note 12, it never advanced such a definition prior to trial and cannot pursue it at this time. *Cf. Johnson v. Trueblood*, 629 F.2d 287, 294-95 (3d Cir.1980), *cert. denied*, 450 U.S. 999, 101 S.Ct. 1704, 68 L.Ed.2d 200 (1981). Furthermore, AMI provided no evidence concerning the labor content of IBM's warranty maintenance service. The prices of IBM's maintenance agreements do not equal IBM's costs for providing the service.

The evidence compellingly showed that technological advances incorporated in the 308X computer system have reduced the amount

of labor involved in performing 308X MIPS upgrades[60] to an amount which is insignificant and de minimus for antitrust purposes. With a modification to account for "fabrication" labor, I adopt Mr. Ross's estimates of the labor content of 308X MIPS upgrades. I also credit Mr. Ross's assertion that IBM's $165 hourly rate for installation services allows it to recover its labor costs plus a reasonable profit. Therefore, were I to require IBM to sell the parts involved in such upgrades without IBM labor included, I would not require IBM to sell the parts at a price reflecting a greater reduction from IBM's current net price than that suggested by Mr. Ross's figures, after adjusting for fabrication work.[61]

b.

To reflect more accurately the amount (and quality) of the labor component of 308X MIPS upgrades as AMI has defined it, Mr. Ross's figures must be adjusted to include fabrication work. Prof. Levin testified that Mr. Ross's "installation" figures had to be adjusted by as much as 65 percent. *See* Levin, Tr. 105-09; *see also* PX 462; PX 463; PX 464; PX 416; PX 425. The evidence does not warrant such an increase.[62] Prof. Levin's estimates of the "fabrication" component of 308X MIPS upgrades relies on IBM prices for certain memory and channel upgrades performed by IBM with customer-owned parts between December 1983 and November 1984, from which AMI calculated the percentage of the total labor attributable to "fabrications and support (non-installation) activities." *See* A.P.F. at ¶ 168. Prof. Levin's estimates expressly include more than just fabrication

---

[60] Although the focus has been on MIPS upgrades, my analysis applies to all 308X upgrades involving TCM technology. Half of all memory upgrades were net priced, but not all of them involved the TCM technology; some used the predecessor MST technology.

[61] Nor would I require IBM to sell the necessary parts on an OTC basis at an aggregate price lower than the price suggested by Mr. Ross's estimates, after adjusting for fabrication.

[62] Even if Mr. Ross's figures were increased by 65 percent, AMI would not have a viable business opportunity if only a few of the expenses AMI would necessarily incur to perform the work were taken into account. *See* DX 3001; DX 1927; *see also* Levin, Tr. 197-204; Ross, Tr. 1392-96.

activities and do not involve model (MIPS) upgrades. The reliability of the methodology and the figures, for purposes of calculating the fabrication component of 308X MIPS upgrades, is therefore suspect.

Furthermore, the field engineering prices relied upon by Prof. Levin were "corrected" by IBM, *see* Ross, Tr. 1387-89, and made "more competitive" in 1984, before this action was brought.[63] *See* PX 377 at 89707. Mr. Ross relied upon the corrected, "more competitive", and uncontested 1985 prices. *See* Ross, Tr. 1387-89; DX 2091; PX 410; PX 422; PX 464. Prof. Levin knew that IBM had changed the prices he used to arrive at the 65 percent adjustment figure, but made no attempt to adjust the figure to reflect IBM's corrected prices. Levin, Tr. 119-22, 125-28, 131-33. IBM did and, using Prof. Levin's methodology, determined that non-installation (including fabrication) services accounted for 11 (not 65) percent of the total labor involved in performing upgrades. *See* Ross, Tr. 1398-99; PX 410; PX 422; PX 464; DX 3001A. This is the most accurate estimate produced at trial and I adopt it. Mr. Ross's figures, which excluded the amount of labor represented by fabrication work, must therefore be increased by 11 percent to account for the total labor (as defined by AMI) involved in 308X MIPS upgrades.

c.

Using IBM's 1985 labor and MES prices, adjusting Mr. Ross's calculation of the labor component by 11 percent, and taking into account a few of the expenses (inventory and transportation costs) AMI would incur if it performed all MIPS upgrades IBM performed

---

[63] AMI suggests that IBM's lower and "more competitive" SWRPQ installation labor price of $165/hr. was designed to prevent third party installation of IBM features bought on an SWRPQ basis. *See* A.R.M. at 35 n*. AMI relies on a 1983 memorandum by Mr. Gibson in which he states, "Since third parties see an opportunity here, we should re-examine the SWRPQ price," and "It appears the $221 effective rate is high and allows enough of an umbrella for a third party to install the MES." PX 151. The memorandum, however, refers to a 303X feature, not a 308X upgrade, *see id.*, and the effective hourly rate was not $221/hr, as Mr. Gibson assumed, but $161/hr. *See* PX 440 (stating that if the $161 hourly rate were to be modified, it should be increased to $186/hr.). Furthermore, absent proof of below-cost pricing, it would not be unlawful for IBM to "reexamine" its prices in order to compete more effectively.

during the relevant years,[64] one can assess the impact on AMI's business if IBM unbundled its sales of 308X MIPS upgrade parts and labor, and AMI bought the parts from IBM and acquired all of IBM's MIPS upgrade business.[65] AMI would lose over $35 million. *See* DX 3001A.[66]

AMI disputes IBM's assertion that AMI would always incur inventory holding costs of 3 percent of the upgrade purchase price.[67] A.R.M. at 36. The 3 percent figure is based on an interest rate of 12 percent and a holding period of 3 months. *See* PX 379, at 19, 21; Allen, Tr. 378. AMI's principal argument is that AMI would not incur such costs if AMI's major customers, the leasing companies, instead of AMI, purchased and stored the parts for subsequent use. A.R.M. at 37. AMI does not deny that it would incur inventory holding costs if it had to warehouse the parts itself. AMI stored 303X parts it acquired from IBM for subsequent installations, and incurred the 3 percent inventory carrying cost. Levin, Tr. 195, 199. Further, Mr. Allen stated that AMI would incur the 3 percent inventory cost if it "were permitted to compete in this market of [308X] net priced MESs." Allen, Tr. 377-78; *see also* DX 197 (AMI inventory of MESs

---

[64] Additional expenses which AMI would incur include: the increased labor costs required to perform the additional upgrades (this amount would be large, *see* Houghton, Tr. 1453-56; Beckwith, Tr. 1302-03; Baumol, Tr. 1650-51; Ross, Tr. 1396; DX 1776A); additional expenses for marketing and inventory management; increased expenses for property, plant, and equipment; additional inventory insurance; and added interest expenses. *See* Houghton, Tr. 1453-56; Baumol, Tr. 1650-55; DX 1925.

[65] If AMI took over only a portion of IBM's business, its revenues and expenses would be adjusted accordingly, and the impact on AMI's business would be proportionately the same.

[66] The only way AMI could engage in the 308X upgrade business profitably, were the needed parts sold without IBM labor, would be if customers were willing to pay a substantial premium for AMI's services. The record does not support a finding that such a possibility exists. *See infra* pp. 290-291.

[67] AMI does not appear to contest IBM's assertion, which is supported by the record, that AMI would incur out of pocket travel expenses equivalent to $1,500 per transaction. *See* Levin, Tr. 203; PX 379, at 20-21.

it owned). I therefore conclude that it is appropriate to include such holding costs among AMI's expenses.

AMI's business prospects would not be greatly improved if its anticipated inventory costs were reduced from 3 percent to 2 percent (to reflect a shorter holding period) and actual IBM prices (rather than 1985 prices) for 308X upgrade labor and MESs (net-priced) for the period 1982 to 1986 are considered.[68] In such event, AMI would lose over $26 million.[69] *See* DX 3001B; Ross, Tr. 1400-01.

My conclusion that AMI has no viable business opportunity concerning 308X upgrades excludes from the analysis at least as many considerations favorable to IBM as to AMI. For example, I have not further adjusted Mr. Ross's figures concerning the value of the labor component of 308X upgrades to reflect an arguably greater level of skill that may be involved in fabrication work. *See supra* p. 283.[70] On the other hand, I have not included in my assessment of AMI's business opportunities a range of additional and evidently considerable expenses which AMI would incur proportionately to the amount of IBM upgrade business it took over. *See supra* note 64. These refinements would not change the fact that technological advancements have so reduced the amount of labor involved in performing 308X MIPS upgrades that it represents a relatively insignificant percent of the value of the associated hardware.

---

[68] If actual IBM prices for 308X labor and net priced MESs are used instead of Mr. Ross's original figures, which applied 1985 prices for both through the period 1982 to 1986, the average labor content of all MES upgrades would be .8 percent of the purchase price of the net priced MES, *see* DX 3001B; *i.e.*, an amount lower than Mr. Ross's estimate of 1.2 percent, and lower than the .9 percent deemed unprofitable by AMI.

[69] If actual prices during the 1982-1986 period are used, and the 3 percent inventory cost figure retained, AMI would lose over $48 million.

[70] I relied on Prof. Levin's methodology, which made no distinction between the quality of installation and fabrication labor, but measured only the additional quantity of labor associated with fabrication work.

2.

Per se condemnation of a tying arrangement may be warranted when the seller possesses the degree or kind of market power that enables it to force customers to purchase a second product (which the buyer either does not want at all or would prefer to purchase elsewhere on different terms) in order to obtain the tying product. *Hyde*, 466 U.S. at 17-18, 104 S.Ct. at 1560-61. Proof of a *per se* unlawful tying arrangement requires proof of the existence of two separate and distinct products or services. I have already concluded that AMI has failed to show that IBM possesses the requisite economic power to force or coerce buyers. My findings that the value of the labor content of 308X MIPS upgrades is negligible and that IBM's net pricing has not precluded AMI from engaging in a viable business are relevant to the issue of the existence of two separate products.

"[W]hether one or two products are involved turns . . . on the character of the demand for the two items." *Hyde*, 466 U.S. at 19, 104 S.Ct. at 1562; *see also*, *Will*, 776 F.2d at 671 n. 1 ("A tie involves products that may be sold in separate markets."). In this case, no unlawful tying arrangement can exist unless there is sufficient demand for the labor service involved in performing 308X upgrades, separate from the demand for the requisite parts, to identify a distinct product market in which it is efficient to offer the former separately from the latter. *See Hyde*, 466 U.S. at 21-22, 104 S.Ct. at 1563.

AMI has failed to establish the requisite separate demand for the services it defines as the tied product.[71] The evidence is especially lacking with respect to end-users of 308X computers. Although some expressed an interest in having a choice among suppliers of upgrades, *see, e.g.*, Shah, Tr. 1529-30; English, Tr. at 1567-69, most expressed no interest in having 308X upgrade parts and labor provided separately. End-users tended to view the parts and labor as a single

---

[71] At trial, AMI counsel acknowledged that if the value of the labor content of 308X upgrades were de minimus, the two products would be considered a "single product": If that were the case, "[w]hat the customer really wants is the feature. He doesn't care about the installation." AMI Opening Statement, Tr. 10-12. AMI counsel stated that "$2400 out of a much larger cost for the feature" would be de minimus. *Id.* That is the case involving the E to B 308X upgrade. *See* DX 1805A.

product. William E. McKinley, of Kent State University, testified that he was "very definitely not interested in having parts arrive from one source and installation arriving from another source." McKinley, Tr. 1503-04. Bipin Shah, of Core States Financial Corporation, testified that he did not "shop around for parts and labor." His company asks for a single "upgrade price, total, end to end . . . [y]ou come in and do the whole job and you quote a price on that." Shah, Tr. 1526. Thomas English, of Federal Mogul Corporation, had no interest in separately acquiring the parts for upgrades and shopping around for installation services. English, Tr. 1566-67. Thomas Druding, Computer Configurations Specialist for City of Philadelphia, testified that he was not aware of any situation in which the City had requested separate prices for upgrade parts and installation. Druding, Dep. Tr. 9-11. First Pennsylvania Bank of Philadelphia purchased J to K upgrade parts (which IBM sells SWRPQ) from one source and used AMI to install the upgrade, but did not purchase the parts from IBM or another company which could also install the upgrade. Wilde, Dep. Tr. 26-34. David Ness, of TV Guide, testified that he was uncertain but thought he would be interested in purchasing 308X upgrade parts without the labor included if his company's technical staff had the skill to perform the upgrade. Ness, Tr. 1550.

Unlike end-users, leasing company witnesses expressed a desire for alternative sources of upgrade parts and labor. CMI Executive Vice President Gary Smith distinguished between the parts and labor involved in an upgrade, and said CMI wanted the option of having "IBM or . . . somebody else do the work." Smith, Tr. 579. Melvin Lewis of Comdisco testified that Comdisco wanted IBM to price parts and labor separately.[72] Lewis, Tr. 478-79, 1717. Comdisco wished to have the choice of having AMI install upgrades using parts (features) purchased from IBM without IBM labor included because of the greater "flexibility" AMI provided. *See* Lewis, Tr. 456-57, 476-

---

[72] In the majority of instances when Comdisco sells an upgrade to an end user, it does not quote a separate price for the installation labor involved in the upgrade; it sells the user a "result that includes both the parts and the labor." Lewis, Tr. 502-03. CMI also generally charges its upgrade customers a single price for the parts and the installation labor. Smith, Tr. 613-14; *see also*, Loria, Tr. 674-76. CMI's customers generally request a single price for the installed upgrade. Smith, Tr. 614.

78, 480-82, 548-49. CMI also regarded AMI's relatively prompt reconfiguration service as important. *See* Smith, Tr. 581-82.

Although there was evidence of demand on the part of some leasing companies for separately-provided 308X upgrade labor, AMI failed to establish the existence of demand for such labor at the prices AMI would admittedly have to charge in order to provide the service. For AMI to engage in the business of providing 308X upgrade services (based on the schedule of upgrade parts prices IBM would be entitled to set), it would have to charge considerably more than IBM for essentially the same service.

There is insufficient evidence of demand for upgrade labor at prices AMI would have to charge to support a conclusion that a competitive market for 308X upgrade labor does or could exist. Leasing companies have purchased virtually no 308X model, memory, or channel upgrades without IBM labor included (in order, for instance, to have AMI install the upgrade) when such upgrades were available on an SWRPQ basis (which roughly equals the price IBM would be entitled to charge for its parts).[73] *See* DX 2265; DX 1063; DX 1584. Every J to K upgrade purchased by CMI and Comdisco was bought with IBM installation service included even though IBM also sold the feature on an SWRPQ basis.[74] *See* Lewis, Tr. 1720; Smith, Dep. Tr. 130-33. AMI bought only two J to K upgrades from IBM (out of 142 such upgrades sold by IBM) on an SWRPQ basis between 1982 and 1985. Allen, Tr. 382. AMI installed only one of the two J to K upgrades; it used the parts of the second J to K upgrade to perform a B to J upgrade. *See* Allen, Dep. Tr. 1252,

---

[73] The "MES Price(s) Without Labor" set forth in DX 1805 fail to deduct for installation labor and would have to be reduced accordingly.

[74] Witnesses from CMI and Comdisco testified that neither company knew that IBM sold upgrades (including the J to K) without IBM labor included. *See* Lewis, Tr. 1721; Loria, Tr. 654-58; 660-61; Smith, Tr. 611-13. I do not credit such testimony, as there was documentary evidence (requests for IBM "SW" prices) to the contrary. DX 2265 (Smith); DX 2261, DX 2262, DX 2263 (Loria); DX 2260, DX 2266 (Lewis). Further, the SWRPQ procedure has existed since 1975. DX 2219. SWRPQ prices are readily available from IBM. *See* Ross, Tr. 1371-72; Robertson, Tr. 693-94; Ritchie, Tr. 1114, 1120. AMI acknowledged that SWRPQ prices are made available from IBM when specifically requested. A.P.F. at ¶ 99.

1256-57; DX 79; DX 137; DX 1363, p. 8333. One of the reasons why AMI was uninterested in buying more SWRPQ J to K upgrades from IBM was the price. Allen, Tr. 374-75, 380-83; DX 1805; DX 1401 at 16-23, 42, 45, 56.

AMI produced evidence that Comdisco used AMI to install a number of MESs even though Comdisco had bought the MESs from IBM with IBM installation labor included. *See* Lewis, Tr. 545-46, 500-01. However, Mr. Lewis of Comdisco explained that he would use AMI installation service only if it were "lesser than, the same as, or in rare exceptions, only a slight premium above the prevailing IBM list price." Lewis, Tr. 549. Using an E to B upgrade as an example, Mr. Lewis testified that he would not regard an AMI hourly rate of $1500 for installation service as only slightly greater than an IBM hourly rate of $180 or $200.[75] Lewis, Tr. 1724. Mr. Smith of CMI testified that, other things being equal, he did not wish to pay 10, 20 or 30 times more than necessary to obtain installation service. Smith, Tr. 607-09. When AMI performed a J to K upgrade for CMI with the J to K upgrade parts AMI bought from IBM on an SWRPQ basis in 1984, it charged CMI the same price IBM would have charged for the installed upgrade; it did not charge a premium. *See* DX 55; DX 57; PX 1-y at 140, 836.

3.

The evidence that leasing companies would not select AMI's more expensive installation services if IBM unbundled the sale of 308X features and labor is relevant also to the issue of IBM's economic power. AMI sought to establish that IBM possesses the requisite market power to warrant *per se* condemnation by reference to the "substantial volume of purchases of unwanted IBM engineering

---

[75] Using customer-owned parts, AMI charged Comdisco between $25,000 and $30,000 for installing an E to B upgrade, requiring approximately 20 man hours. Lewis, Tr. 1723. Based on Mr. Ross's calculations, the value of IBM installation service for an E to B upgrade, requiring about 13 man hours of labor, *see* DX 1926, is $2,400. DX 1085A. Based on these facts and Mr. Lewis' assertions, it is fair to conclude that Comdisco would not select AMI over IBM to install a new E to B upgrade if it had the choice. In view of this evidence, I do not accept AMI's assertion at closing argument that leasing companies "don't care whether the service costs $2400 or $20,000." Post Trial Oral Argument, Levy, at 30.

service as a result of net pricing. . . ." A.R.M. at 25. For example, AMI contends that, absent net pricing, Comdisco "would utilize AMI or other third party fabricators to fabricate and install a significant number of upgrades." A.P.F. at ¶ 106.

AMI's position requires proof that buyers considered the requirement of buying IBM labor a burdensome term of the 308X upgrade sales agreement and would not have purchased IBM's labor but for IBM's requirement that they do so. *See Northern Pacific*, 356 U.S. at 7-8, 78 S.Ct. at 519 ("The very existence of this host of tying arrangements is itself compelling evidence of the defendant's great power, at least where, as here, no other explanation has been offered for the existence of these restraints."); *Fortner I*, 394 U.S. at 503-04, 89 S.Ct. at 1259. (The "concern is whether the seller has the power to raise prices, or impose other burdensome terms such as a tie-in, with respect to any appreciable number of buyers within the market."); *Advance Business Systems & Supply Co. v. SCM Corp.*, 415 F.2d 55, 69 (4th Cir.1969) ("Acquiescence in the burdensome term by an appreciable number of customers gives rise to an inference" of economic power.); *cert. denied*, 397 U.S. 920, 90 S.Ct. 928, 25 L.Ed.2d 101 (1970).

The evidence established that buyers who complained about having to purchase IBM labor along with upgrade parts assumed that they could obtain installation labor from alternative sources, such at AMI, at prices comparable to or competitive with those of IBM. Based on the evidence, I conclude that no buyer would have regarded the purchase of IBM labor as "unwanted" or "burdensome" had it known of the disparity of prices at which IBM and AMI would provide installation labor if IBM discontinued net pricing. Absent net pricing, buyers would likely continue to use IBM installation services. Therefore, proof of the purchase of IBM's labor by buyers opposed to net pricing does not establish that IBM possesses the economic power to "force" or "coerce" buyers into buying a product they do not want. "If the product in the second market would be accepted anyway, because of its own merit then, of course, no leverage is involved; . . . there is no use of the seller's market power." *Ungar v. Dunkin' Donuts of America, Inc.*, 531 F.2d 1211, 1218 (3d Cir.), *cert. denied*, 429 U.S. 823, 97 S.Ct. 74, 50 L.Ed.2d 84 (1976); *see also Fortner II*, 429 U.S. at 618 n. 10, 97 S.Ct. at 867 n. 10 (The approach to

establishing economic power suggested in *Advance Business Systems* "depends on the absence of other explanations for the willingness of buyers to purchase the package. . . .").[76]

4.

There is no *per se* rule against tying arrangements "unless a substantial volume of commerce is foreclosed thereby." *Hyde*, 466 U.S. at 16, 104 S.Ct. at 1560; *see also Fortner I*, 394 U.S. at 501, 89 S.Ct. at 1258 (The "controlling consideration is . . . whether a total amount of business, substantial enough in terms of dollar volume so as not to be merely *de minimis*, is foreclosed to competition by the tie.").

If Mr. Ross's unadjusted estimate of the value of the labor component of 308X MIPS upgrades is used, and that amount is multiplied by the number of such upgrades performed by IBM during the relevant time period, and those figures are added, the sum ($23,158,000) approximates the total value of the allegedly tied product.[77] *See* PX 461; Levin, Tr. 104. Mr. Ross's figures are based on 1985 prices for IBM labor and net-priced MESs. *See* DX 3001A. If the average of actual IBM net MES prices and labor prices for the relevant period are used, and the value of the fabrication component is taken into account, the result ($20,639.261) is a closer approximation of the total value of the allegedly tied upgrade labor. DX 3001B.

Were the sole "relevant figure" the "dollar volume of all sales of the tied item", as AMI contends, A.R.M. at 31, I would conclude that AMI had satisfied the requirement of substantiality of effect on interstate commerce. *See, e.g., International Salt Co. v. United States*, 332 U.S. 392, 395-96, 68 S.Ct. 12, 14-15, 92 L.Ed. 20 (1947)

---

[76] Even if there had been proof of acceptance by buyers of burdensome terms, such proof would be evidence of coercion, but would not, alone, "suffice to establish, prima facie, the coercion element of an illegal tie-in claim." *Ungar*, 531 F.2d at 1225.

[77] The $23 million figure only approximates the total value of the allegedly tied labor component in part because it excludes fabrication labor and includes the value of the labor component of J to K upgrades, which were optionally available on an SWRPQ basis.

($500,000); *Fortner I*, 394 U.S. at 502, 89 S.Ct. at 1258 ($190,000). However, the *per se* rule's substantiality requirement reflects a concern with "impact on competition" and the amount of commerce foreclosed. *See Hyde* 466 U.S. at 16, 104 S.Ct. at 1560.[78] AMI has not shown that it engaged in an activity foreclosed by IBM's net pricing. Upgrade services on 308X computers were materially different from upgrade work on predecessor computer systems. Nor has AMI shown that it would have engaged in the 308X upgrade business but for net pricing. AMI has failed to establish the "adverse impact on competition" with which the antitrust laws are concerned "because no portion of the market which would otherwise have been available to other sellers has been foreclosed" by IBM. *See Hyde*, 466 U.S. at 16, 104 S.Ct. at 1560.

D.

Even if not *per se* unlawful, a business practice may violate the antitrust laws if it is found to impose an unreasonable restraint on competition under the Rule of Reason analysis. *See, e.g., Hyde*, 466 U.S. at 29, 104 S.Ct. at 1567; *Fortner I*, 394 U.S. at 503, 89 S.Ct. at 1258. AMI contends that IBM's net pricing is unlawful under the Rule of Reason. A.M. at 49. "The Rule of Reason . . . focuses directly on the challenged restraint's impact on competitive conditions." *National Soc'y of Professional Engineers v. United States*, 435 U.S. 679, 688, 98 S.Ct. 1355, 1363, 55 L.Ed.2d 637 (1978). It entails an analysis of the purposes and effects of an allegedly anticompetitive practice. *See United States v. American Tobacco Co.*, 221 U.S. 106, 179, 31 S.Ct. 632, 648, 55 L.Ed. 663 (1911).

A finding of illegality under the Rule of Reason "presupposes a determination . . . that the "effect upon competition in the marketplace is substantially adverse." *Columbia Metal*, 579 F.2d at 26 (footnote omitted). The percentage of business controlled by defendant and the

---

[78] In *Fortner I* the Court stated that the "relevant figure is the total volume of sales tied by the sales policy under challenge, not the portion of this total accounted for by the particular plaintiff who brings suit." 394 U.S. at 502, 89 S.Ct. at 1258. AMI's portion of the foreclosed volume of commerce is not at issue here. The *Fortner I* Court did not consider the situation in which the plaintiff bringing suit has failed to show it would or could have engaged in the commercial activity allegedly foreclosed by the tie.

strength of the remaining competition are relevant considerations. *See Times-Picayune*, 345 U.S. at 615, 73 S.Ct. at 884. I have already concluded that IBM large scale mainframe computers and upgrades to such computers face considerable competition from a variety of data processing products and services, the effect of which is to deprive IBM of the power to raise prices or impose burdensome terms, such as tie-ins, on buyers. *See NCAA*, 468 U.S. at 110 n. 42, 104 S.Ct. at 2965 n. 42 ("[T]he 'reasonableness' of a particular alleged restraint often depends on the market power of the parties"; market power is one test of reasonableness). The availability of wide-ranging alternatives to IBM net priced upgrades (and the parts involved in the upgrades)[79] precludes a finding that IBM's net pricing policy has any appreciable anticompetitive effect on the market as a whole. *See Great Escape, Inc. v. Union City Body Co.*, 791 F.2d 532, 537-38 (7th Cir.1986); *Will*, 776 F.2d at 671-74; *A.I. Root*, 806 F.2d 673; *Robert's Waikiki U-Drive, Inc. v. Budget Rent-A-Car Systems*, 732 F.2d 1403, 1408 (9th Cir.1984). Prof. Levin acknowledged that if there existed economically viable, reasonable, or realistic alternatives to IBM 308X upgrades, any anticompetitive effects of the alleged tie would be substantially mitigated if not completely eliminated. *See* Levin, Tr. 153-55; *accord* Baumol, Tr. 1645.

AMI has also failed to establish that net pricing has an anticompetitive impact on the market for 308X upgrade labor services. *See Hyde*, 466 U.S. at 29, 104 S.Ct. at 1567 (requirement that plaintiff prove that the contract "unreasonably restrained competition" involves "an inquiry into the actual effect of the exclusive contract on competition among anesthesiologists."); *see also Pitchford v. Pepi Inc.*, 531 F.2d 92, 101 (3d Cir. 1975). The amount of labor involved in performing 308X MIPS upgrades is, for antitrust purposes, negligible, and AMI has failed to show that it could compete with IBM for the provision of 308X upgrade services if a market for such services existed as a result of IBM's discontinuation

---

[79] Besides buying net-priced upgrades, buyers wishing to increase their data processing capabilities may: buy replacement or additional computers of various sizes and processing power; add input/output devices; select appropriate software; install upgrades with used parts; subcontract to computer services and service bureaus; and to a more limited extent, swap machines or upgrades. *See supra* pp. 271-277.

of net pricing. The evidence also warrants the conclusion that no other third party fabricator would be able to compete effectively. *See* Baumol, Tr. 1645-46.

Although AMI has failed to establish that IBM's net pricing policy had an appreciable adverse impact on competition, it is desirable under the Rule of Reason analysis to review IBM's reasons for implementing 308X net pricing:

> While the antitrust laws regulate conduct, as distinguished from intentions, . . . "the reason for adopting the particular remedy [and] the purpose or end sought to be attained . . . are all relevant facts. This is not because a good intention will save an otherwise objectionable regulation or the reverse; but because knowledge or intent may help the court to interpret facts and to predict consequences."

Alberta Gas Chemicals Ltd. v. E.I. duPont de Nemours & Co., 826 F.2d 1235, 1251 (3d Cir.1987) (Becker, J., dissenting) (quoting *Chicago Bd. of Trade v. United States*, 246 U.S. 231, 238, 38 S.Ct. 242, 244, 62 L.Ed. 683 (1918)); *see Times-Picayune*, 345 U.S. at 615, 73 S.Ct. at 884 (Reasonableness inquiry under Section I focuses in part on "whether the action springs from business requirements or purpose to monopolize."); *see also NCAA*, 468 U.S. at 104 n. 26, 104 S.Ct. at 2961-62 n. 26 (tying arrangements "may have procompetitive justifications that make it inappropriate to condemn without considerable market analysis."). *But see H & B Equipment Co. v. International Harvester Co.*, 577 F.2d 239, 246 (5th Cir.1978) ("Absent anticompetitive effect, an unlawful intent will not establish a rule of reason violation. . . .").

1.

IBM introduced evidence of legitimate business justifications for its 308X net pricing policy. In addition, Michael Armstrong, the IBM executive who decided in 1980 to apply net pricing to the 308X product line, testified that IBM's management did not consider the impact net pricing might have on third party fabrication and installation activity, in part because it regarded the amount of labor involved as trivial. Armstrong, Tr. 903-05. I credit Mr. Armstrong's testimony.

The principal goal sought to be served by net pricing was the prompt and proper return of TCMs removed from upgraded 308X computers. Reusability was a key design objective incorporated into the TCM technology. *See* Armstrong, Tr. 902-03, 904-05; Toole, Tr. 1012-13; Ross, Tr. 1365-67; DX 1136, p. 2. By 1978, IBM assumed that a large portion of the TCMs to be used in 308X computers, upgrades, and field spares would come from TCMs removed from installed equipment and converted into equivalent-to-new (ETN) condition. The reusability of TCMs was "critical to the pricing" of the 308X product line. Ross, Tr. 1365-66; DX 1136, p. 2. IBM assumed that 25 to 30 percent of the total component demand for the 308X series would be met with reused components. Ross, Tr. 1366. The ETN program allowed IBM to maximize its supply of 308X machines and upgrades, and reduce unit cost, in part by avoiding having to construct additional manufacturing facilities. *See* Ross, Tr. 1365- 67; Toole, Tr. 1011. But for the reusability of TCMs, IBM "would have not been satisfying the market requirements." Armstrong, Tr. 902-03. An IBM official testified that, in 1980, IBM faced a shortage of supply of TCMs and that, but for the ETN program, the effect of the shortage on the 308X program would have been "unquantifiable but devastating." Toole, Tr. 1017.

IBM has converted tens of thousands of TCMs into ETN condition and reused them in 308X processors and upgrades. *See* Ross, Tr. 1366. It is faster and less expensive to ETN a TCM than to build a new one: a TCM can be ETN'd in one or two weeks on IBM's manufacturing line (involving about 25 operations) as opposed to 6 to 9 months to make a new one (involving about 325 operations). Toole, Tr. 995-96; Granito, Tr. 949; DX 1850. The ETN procedure costs IBM less than $6000 per TCM. Toole, Tr. 1028-29; Baumol, Tr. 1691. The manufacturing cost of a TCM is $12,000.[80] Granito, Tr. 981-82. Once ETN'd, TCMs are marketed as if new and sold at prices for new TCMs. Toole, Tr. 1008-09, 1030-31.

The success of the ETN program, critical to the marketing and pricing of TCMs, depended on the proper handling of removed TCMs

---

[80] This figure does not include IBM's TCM research and development costs. Granito, Tr. 982.

and a careful monitoring of the number and types of operations performed on them. Granito, Tr. 945-47; Ross, Tr. 1412. According to Mr. Ross, IBM could reuse TCMs only "[i]f we knew and we got them back on a timely manner and we understood the . . . precise condition of those TCM's" when they were returned. Ross, Tr. 1412. "[I]t is the number of times those TCMs are plugged and unplugged and capped and uncapped that is critical, and without knowing which machine they came from, we would have no assurance as to their quality or their usability." *Id.* Since 1979, IBM has tracked each manufactured TCM by serial number to be certain that each TCM is reused within the guidelines established for TCM reuse. Granito, Tr. 946-47. TCMs exceeding IBM's reusability guidelines are scrapped. *Id.*

IBM could not rely on other parties to observe the TCM handling guidelines necessary to preserve the reusability of TCMs, or even to return parts removed during the installation of a net priced upgrade. *See, e.g.*, Van Hellemont, Dep. Tr. 174-76; Allen, Dep. Tr. 88-89, 527-28, 1324-35; DX 88; DX 89; DX 90; Smith, Dep. Tr. 214-15. Further, as an IBM official explained, the credit-for-return system suggested by AMI as a replacement to net-pricing was unworkable. *See* Ross, Tr. 1377-78. AMI offered no testimony on the subject of a credit-for-return system.

IBM's net pricing policy was and is a legitimate and reasonable way to ensure the prompt and proper return of TCMs needed to sustain the ETN program and the commercial success of the 308X line of products.[81] Net pricing facilitated the development and marketing of TCM technology, and thereby enhanced technological progress and economic competition in the data processing industry. Given the existence of legitimate reasons for net pricing, and the fact that its procompetitive effects outweigh its virtually nonexistent anticompetitive impact, I conclude that AMI's rule of reason challenge to net pricing fails.

---

[81] It is worth repeating that IBM requires the return of removed TCMs only when a new net-priced upgrade is bought from and installed by IBM. Over 90 percent of IBM's 308X computers are privately owned; the owners of those computers can do as they wish with their TCMs. *See* DX 1847; PX 25; *see also* Baumol, Tr. 1692-93.

2.

Although I find that the record as a whole does not support AMI's assertion that net pricing was IBM's "solution to third party fabricator competition", *see* A.M. at 13, there is some evidence tending to suggest the contrary. Most important is the fact that IBM applies net pricing to numerous 308X memory upgrades that do not require the return of TCMs.[82] Lewis, Tr. 1738. IBM's net pricing of such upgrades is inconsistent with IBM's principal stated justification for net pricing and therefore raises doubts about IBM's motives. *See, e.g., White Motor Co. v. United States*, 372 U.S. 253, 270 n. 9, 83 S.Ct. 696, 705 n. 9, 9 L.Ed.2d 738 (1963) (Brennan, J., concurring) (Restriction on competition which is broader than reasonably necessary to achieve defendant's legitimate needs "invites suspicion."). However, not all such memory upgrades are net priced (only those involving the removal of other key parts are), and no 308X channel upgrade (also not requiring the return of TCMs) is net priced. AMI does not claim that IBM's net pricing of non-TCM 308X memory upgrades constitutes a distinct antitrust violation, and there was little evidence at trial concerning memory upgrades.

What AMI regards as direct evidence of IBM's anticompetitive intent is minimal and does not outweigh the ample evidence of IBM's legitimate business reasons for implementing net pricing. AMI established that IBM knew that at least one major leasing company was dissatisfied with IBM MES delivery and installation schedules, *see* A. Carr, Dep. Tr. 249, 26, 32-33, 80-81, 97-99, that IBM was aware of increased third party installation activities, and that IBM considered how to respond to such activities. For example, Mr. Gibson stated in an IBM internal memorandum dated April 19, 1983, that it "has become apparent that more and more MESs are being installed by third parties. . . ." PX 137. However, Mr. Gibson testified that he was referring to the installation of SWRPQ upgrades, which are not affected by net pricing. Gibson, Dep. Tr. 191-192. Similarly,

---

[82] The evidence does not establish the total value of net priced 308X memory upgrades which incorporate only the older MST technology, but AMI counsel put the figure in the "many millions of dollars" range. A.R.M. at 2. IBM does not dispute AMI's assertion that, in 1984, IBM's revenues from the sale of all net priced memory upgrades exceeded $70 million. *See* A.P.F. at ¶ 79.

Mr. Biggar, President of IBM's Field Engineering Division (FED), reported in December, 1982, that employees in the division raised "concerns regarding third party installing IBM MESs on IBM systems", including the concern that third parties were able "to cut the price on installation" of MESs sold without IBM labor included, and that some of the concerns had to be resolved "in order for FED to maintain the feature installation business in a competitive and professional manner." PX 277. However, the memorandum does not state whether it refers to 308X or 303X equipment, or both, or whether it involved model, memory, or channel upgrades.

As the preceding examples illustrate, most if not all of the documents and statements upon which AMI relies to show that net pricing reflected anticompetitive designs have limited probative value because they were made or written on unknown dates or over two years after IBM decided to implement net pricing.[83] It is also unclear whether much of the evidence involves 308X upgrade activities; 303X upgrade work; general reconfiguration work; or removal and reinstallation activity involving customer owned parts and equipment. *See* PX 119; PX 275. Such removal and reinstallation activity is unrelated to IBM's net pricing policy.

3.

IBM also offered evidence of procompetitive justifications for its OTC price structure, discussed *supra* note 10, and its serial number designation policy, under which customer orders for IBM features, model conversions, or RPQs had to be accompanied by a designation of the serial number of the machine on which the ordered parts were to be installed. *See* DX 1325, p. 1; PX 168, p. 1; PX 377, pp. 89712-13; Ritchie, Tr. 1090-93. The policy did not apply to OTC parts.

---

[83] For example, AMI refers to the fact that the following question was posed to Mr. Armstrong at an IBM presentation in 1982: "Should IBM resist third party expansion into labor intensive activities, such as feature/model addition and removal, equipment relocation and maintenance?" PX 119 at 48690; *see also* PX 275; Gibson, Dep. Tr. 376-77. AMI also introduced an IBM Agenda containing "RECOMMENDATIONS" for "ACTIONS ON RECONFIGURATION" in which the following appears: "NET PRICED MESs INSTALLED BY IBM." PX 272. The document is undated.

Neither practice individually is the basis of a claim by AMI,[84] and neither practice, alone or in conjunction with the other, or with net pricing, imposes an unreasonable restraint of trade.

a.

IBM priced the TCMs comprising an upgrade so that the aggregate price of the TCM's equalled or exceeded the price of the upgrade. IBM sought to ensure that customers would not buy the parts instead of the upgrades they comprised,[85] since IBM's profit projections for the 308X line of products were based in part on its sale of 308X upgrades. *See* Ross, Tr. 1370-75.

In some cases the upgrade price is well below the aggregate TCM price because some of the TCMs are also used in other, more expensive upgrades and were priced based on those upgrade prices. *See* Ross, Tr. 1373. IBM's OTC pricing structure provided a reasonable mechanism to facilitate IBM's recovery of its substantial investment in 308X technology. *See* Ross, Tr. 1376. Prof. Baumol testified that it was proper and often necessary to price parts at a level equal to or exceeding the price of the completed product the parts make up, especially in industries (such as the data processing industry) where continued technological progress depended on the recovery of research and development expenditures. Baumol, Tr. 1667-68; *see also* Levin, Tr. 862-63.

AMI essentially contends that the OTC price for the parts of an upgrade must be less than the upgrade price by an amount equal to the value of the fabrication and installation labor involved in the upgrade. *See* Levin, Tr. 80-81, 96-97, 156-57, 165. Even if there were

---

[84] For example, AMI does not discuss the serial number designation policy in its post-trial memorandum of law. In its post-trial reply memorandum, AMI states that it would have no complaint concerning the serial number requirement if "parts are available from IBM as a viable alternative." A.R.M. at 35.

[85] Similarly, the net priced upgrade prices were set so as not to impact adversely on IBM's sale of processors. Ross, Tr. 1370-71, 1375; *see also* Levin, Tr. 163-64. Upgrade prices equalled the price-differentials of computer models. *See* DX 1861.

legal support for the proposition,[86] because AMI is not entitled to an aggregate parts price that is below the upgrade net price by an amount greater than the price of the service component, the aggregate parts price to which AMI would be entitled under such a theory would leave too small a margin for AMI to offer upgrade services in competition with IBM.

b.

IBM announced its serial number designation policy in June of 1979. The policy "applies to everyone", Ritchie, Tr. 1094, including AMI, leasing customers, and end-users. *See* Loria, Tr. 639, 670; Bigando, Tr. 1242-43. Prior to 1979, purchasers were permitted to and did order features against "zero serial numbers", *see* PX 169, a practice which enabled purchasers, especially leasing companies, to inventory IBM MESs. In April, 1979, Mr. Gibson of IBM reported that 41 percent of all MESs ordered from IBM were for "zero serial numbered MES orders." PX 169 at 50883. Prof. Levin testified that IBM's policy inhibited "the flexibility of leasing companies", and limited "their ability to respond in a speedy fashion" to customer needs. Levin, Tr. 82-83. A Comdisco official stated that the serial number requirement gave his company "fits" and cut down on its "flexibility". Pontikes, Dep. Tr. 49-50. Yet there was evidence that leasing companies and other third parties were able to inventory parts despite IBM's policy. *See, e.g.*, DX 197; Nolin, Dep. Tr. 59-60, 68-69. The large number of IBM computers owned by the leasing companies provided them with a valuable source of necessary parts and machines against whose serial numbers to order and redesignate ordered parts from IBM. *See* A.P.F. at ¶ 197; Robertson, Tr. 725-26, 727-28; A. Carr, Dep. Tr. 197-200, 202-03, 283-84.

The legitimate business interests of IBM served by the serial number designation policy are not outweighed by the leasing companies' desire for greater flexibility. Mr. Ritchie of IBM testified

---

[86] I am aware of no decision in which a non-predatory price was found to violate the antitrust laws because it was too high. *See, e.g., Kartell v. Blue Shield, Inc.*, 749 F.2d 922, 927 (1st Cir.1984), *cert. denied*, 471 U.S. 1029, 105 S.Ct. 2040, 85 L.Ed.2d 322 (1985); *Fairdale Farms, Inc. v. Yankee Milk, Inc.*, 715 F.2d 30, 32 (2d Cir.1983), *cert. denied*, 464 U.S. 1043, 104 S.Ct. 711, 79 L.Ed.2d 174 (1984).

that the policy was implemented in part to address planning and production problems faced by IBM as a result of the large number of speculative orders for MESs the company received: IBM "had a backlog of orders which--many of which never got installed." Ritchie, Tr. 1092-93; *see also* PX 377, at 89712-13. The serial number designation policy is also an integral part of IBM's computerized system for keeping track of information critical to maintaining, updating, and reconfiguring IBM computers. IBM's Machine Level Control (MLC) records, which are kept on the basis of machine serial numbers, enable IBM to perform numerous tasks accurately and promptly, including: assembling particular features or model conversions (MESs); providing appropriate EC's (modifications periodically installed on computers to correct design difficulties); and shipping the appropriate parts involved in upgrades. *See* Bigando, Tr. 1235-41; Nolin, Dep. Tr. 126-27; Chisholm, Dep. Tr. 95; PX 377 at 89708, 89717; Granito, Tr. 964; Morrow, Dep. Tr. 149. When the serial number and desired configuration change are "loaded" into the MLC system, the system automatically identifies the parts, instructions, microcode diskettes, and any ECs required to install the upgrade. Bigando, Tr. 1238-40. Thus, the compatability and proper functioning of IBM upgrades depends largely on the accuracy of IBM's MLC records. *See, e.g.*, PX 377, at 89708; Lewis, Tr. 523; Allen, Tr. 251-52.

That there may be arguably comparable ways to maintain updated MLC records, *see* Beckwith, Tr. 1340, does not, contrary to AMI's assertion, *see* A.P.F. at ¶ 203, make IBM's policy unreasonable. Similarly, IBM's acknowledgment, in April 1979, soon before announcement of the policy, that 41 percent of the MESs ordered from IBM were "zero serial numbered MES orders", does not, given IBM's valid explanations for the policy, support an inference that the policy, alone or in conjunction with other IBM practices, reflected an anticompetitive design.

E.

In order to establish a cause of action under either a *per se* or rule of reason analysis, AMI "must demonstrate both that the antitrust laws were violated and that it suffered 'fact of damage' in consequence of that violation." *Pitchford v. Pepi, Inc.*, 531 F.2d 92, 98-99 (3d

Cir.1975), *cert. denied*, 426 U.S. 935, 96 S.Ct. 2649, 49 L.Ed.2d 387 (1976); *accord Response of Carolina, Inc. v. Leasco Response, Inc.*, 537 F.2d 1307, 1320 (5th Cir.1976) (plaintiff must show a violation of the antitrust laws, the fact of damage, and some indication of the amount of damage).

Because I conclude that AMI has failed to establish that IBM's net pricing policy was unlawful, I need not address IBM's contention, *see* IBM's Post-Trial Memorandum of Law (hereinafter "I.M.") at 15, that AMI has failed to prove it suffered an "actual injury" or an "antitrust injury", *i.e.*, an "injury of the type the antitrust laws were intended to prevent. . . ." *See Cargill Inc. v. Monfort of Colorado, Inc.*, 479 U.S. 104, 107 S.Ct. 484, 490, 93 L.Ed.2d 427 (1986). However, I note that my finding that IBM's net pricing policy did not deprive AMI of viable business opportunity would seem to preclude a finding that AMI suffered the requisite injury to its "business or property", *see* Section 4 of the Clayton Act, 15 U.S.C. § 15, even if net pricing were somehow unlawful.

INSTALLATION AND WARRANTY SERVICE CHARGE

AMI contends that IBM's Installation and Warranty Service Charge (IWSC), which became effective on June 30, 1980, PX 67, unreasonably restrained trade in violation of Section 1. A.M. at 62-63. Payment of the IWSC entitled IBM customers to installation and warranty service on IBM computers or MESs bought in the United States or Puerto Rico and shipped to a foreign country during the initial twelve-month period following the sale.[87] PX 67; DX 1381, at 85598; DX 2221, p. 42; DX 1532, at 2. The legality of IBM's IWSC is determined under a rule of reason analysis. *See, e.g., Continental T.V., Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36, 97 S.Ct. 2549, 53 L.Ed.2d 568 (1977) (legality of vertical restrictions limiting territories in which products are resold is to be determined under Rule of Reason).

---

[87] The IWSC also applied to IBM equipment purchased abroad and installed (or reinstalled) in the U.S. or Puerto Rico. The main issue at trial was the legality of the IWSC as it affected exports from the United States.

I.

Prior to the implementation of the IWSC, IBM's standard U.S. purchase agreements (for computers and MESs) provided for the installation of the machine and a twelve-month period of limited warranty service (including the replacement of failed parts). *See* PX 608 at 3. The agreements excluded warranty coverage for computers installed outside the U.S. or Puerto Rico.[88] *See, e.g.*, DX 2121 at 3; Ritchie, Tr. 1097; Beckwith, Tr. 1306. Notwithstanding the limitation, IBM, as a matter of practice and generally at no additional cost to its customers, *see* PX 67, continued to provide warranty service on exported machines through its offices abroad. Ritchie, Tr. 1097. IBM's practice was consistent with that of other U.S. Computer manufacturers. PX 71.

A "very substantial" and rapid increase in the movement of IBM computers from the U.S. to foreign and primarily European countries in early 1980 precipitated IBM's announcement of the IWSC, and its discontinuation of the practice of extending warranty service at no extra cost to equipment shipped abroad. Ritchie, Tr. 1097-98; Beckwith, Tr. 1307; Rizzo, Tr. 1213. If buyers wanted fixed-cost IBM installation and warranty service abroad, they had to pay the IWSC. In July, 1980, IWSC fees ranged from 10 to 14 percent of the purchase price of 303X machines, or between $250,000 and $724,000. PX 452; Levin, Tr. 70. The IWSC did not provide for a rebate or refund of the price of the limited warranty service included in the purchase price, but did give the customer a credit for the out-of-pocket costs saved by IBM if the machine was not initially installed in the country of purchase (IBM kept whatever mark-up there was for the installation service). *See* Levin, Tr. 72-73.[89]

---

[88] After institution of the IWSC, IBM's standard purchase agreements continued to contain "essentially . . . the same limited warranty." Ritchie, Tr. 1102; *see also*, DX 2121, at 3; DX 829, at 1; DX 2124, at 5.

[89] Due to the difficulties of administering the IWSC and the number of customer complaints about the policy, especially from leasing companies, IBM discontinued the IWSC as of January 1, 1985. DX 2220, at 16; PX 56, at 1; PX 60; Beckwith, Tr. 1308; Ritchie, Tr. 1101; Robertson, Tr. 700. Although AMI criticizes IBM's post-IWSC policy, it does not assert a claim based upon it.

The increase in the number of customer shipments of IBM computers in early 1980 reflected an international currency imbalance which made it profitable for IBM customers, such as leasing companies, to buy IBM computers in the U.S. and market them in a number of foreign countries in competition with IBM.[90] *See, e.g.*, Lewis, Tr. 466-67; Levin, Tr. 69. Comdisco, for example, in early 1980, purchased new IBM equipment in the U.S. to market in Europe. Lewis, Tr. 467; *see also* PX 61. The addition of IBM's IWSC to the purchase price of a new computer made the export of the machine commercially less attractive and reduced the flow of on-warranty equipment shipped by leasing companies.

Computers purchased in the U.S. and installed in Europe (or in parts of Japan) had to undergo electric cycle conversions in order to function on foreign electrical currents.[91] Allen, Tr. 282-83; Levin, Tr. 60-61. In 1980, AMI was engaged in the business of performing cycle conversions on IBM large scale mainframes. Allen, Tr. 283; Lewis, Tr. 459; Smith, Tr. 594. The decline in the shipping activities of the leasing companies resulted, at least temporarily, in a loss of business opportunity for AMI. *See* Allen, Tr. 386.

In 1981, AMI itself became interested in the cross-border shipment of new IBM computers. AMI considered buying two 308X computers abroad at European prices and marketing them in the U.S. Allen, Tr. 285. According to Mr. Allen, the IWSC costs of $355,630 for one machine and $345,080 for the other made the import and cycle

---

[90] Third party leasing companies, such as Comdisco and CMI, competed with IBM for the placement of large scale mainframe computers with end users in foreign markets. PX 71.

[91] Large scale mainframes operate on 60 cycle electric power in the U.S., and on 50 cycle electric power in Europe and parts of Japan. Lewis, Tr. 459.

conversion of the computers economically unattractive.[92] Allen, Tr. 285-86.

II.

AMI contends that IBM's IWSC policy had the unlawful purpose and effect of preventing AMI (and other third party fabricators) from performing cycle conversions of new IBM computers and leasing companies from exporting, importing, and marketing those machines in competition with IBM. *See* A.P.F. at ¶ 218. AMI also claims that it too was prevented by the IWSC from engaging in the business of cross-border shipments of new IBM computers. A.R.M. at 56. IBM argues that AMI lacks standing to challenge the IWSC under either theory. I.M. at 43-44. I disagree.

A.

It is "as unlawful to prevent a person from engaging in a business as to drive him from it." 2 P. Areeda & D. Turner, *Antitrust Law*, § 335c at 174 (1978); *see also Bubar v. Ampco Foods, Inc.*, 752 F.2d 445, 450 (9th Cir.), *cert. denied*, 472 U.S. 1018, 105 S.Ct. 3481, 87 L.Ed.2d 616 (1985); *Grip-Pak, Inc. v. Illinois Tool Works, Inc.*, 694 F.2d 466, 474-475 (7th Cir.1982), *cert. denied*, 461 U.S. 958, 103 S.Ct. 2430, 77 L.Ed.2d 1317 (1983); *Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 994 (D.C.Cir.1977), *cert. denied*, 436 U.S. 956, 98 S.Ct. 3069, 57 L.Ed.2d 1121 (1978). Generally, "a potential competitor has standing if he can show a genuine intent to enter the market and a preparedness to do so." *Bubar*, 752 F.2d at 450; *see also Grip-Pak*, 694 F.2d at 474-75 (plaintiff "may be able to recover lost profits as a manufacturer even though it has not yet started manufacturing, if it had reasonable prospects of doing so which [defendant] snuffed out.").

AMI has made the necessary showing. AMI had experience in the cycle conversion business and had converted IBM computers for

---

[92] Although the machines on which AMI requested IWSC quotations were more expensive (in U.S. dollars) to buy in Europe than were equivalent machines in the U.S., Allen, Tr. 393; Levin, Tr. 228-29, Mr. Allen hoped to be able to sell them at a price exceeding the difference because of the relatively short supply of the computers in the U.S. Allen, Tr. 285, 391-92. Mr. Allen testified that "the customers who wanted these machines were willing to pay a premium." Allen, Tr. 285.

shipment abroad. In 1981, AMI had customers who were interested in two 308X computers which could not be purchased in the U.S. without delays. The customers were willing to pay a premium to obtain the machines promptly and AMI considered importing and cycle converting two computers from Europe to meet their needs. AMI regarded fixed-cost IBM warranty service coverage as necessary to the success of the deal, and the only way to obtain such warranty service from IBM at the time was to pay the IWSC. *See* Levin, Tr. 75-76. AMI therefore requested and received an IWSC RPQ from AMI's IBM salesman. The added cost of the IWSC (and AMI cycle conversion service) exceeded the premium the customers were willing to pay. Allen, Tr. 284-86. These facts establish AMI's intent and preparedness to purchase computers for cycle-conversions and cross-border sales, even though AMI did not pay the IWSC.[93]

B.

AMI also has standing to challenge the IWSC by virtue of its participation in the cycle conversion business. U.S. manufactured IBM computers could not be marketed abroad without undergoing cycle conversions, and the cycle conversion business depended on the exportation of computers. AMI performed cycle conversions for Comdisco, CMI, Standard and Chartered Leasing, Techtronics, Volkswagen of America, and other companies. Allen, Tr. 283; Lewis, Tr. 459; Smith, Tr. 594. The cycle conversion business was profitable for AMI. *See* Allen, Tr. 286. AMI typically charged between $70,000 and $80,000 for each conversion. *Id.* Comdisco regarded AMI's work as excellent, and CMI used AMI for all of its cycle conversion work. Lewis, Tr. 459-60; Smith, Tr. 594. Prior to the implementation of the IWSC, AMI performed cycle conversions on new IBM computers. *See* Allen, Tr. 386. IBM's IWSC inhibited but did not preclude the

---

[93] I need not agree with AMI that there existed no viable substitute for IBM service warranty under the IWSC to conclude that AMI has standing to test the legality of IBM's policy. The focus of the standing inquiry under Section 4 is not "whether a business practice violates the antitrust laws, but whether a particular plaintiff may recover damages from the effects of the arguably unlawful practice on him or her." *Bogus v. American Speech & Hearing Ass'n*, 582 F.2d 277, 284 (3d Cir.1978).

cross-border shipment of new IBM computers by the leasing companies and limited AMI's cycle conversion business.

The IWSC's impact on AMI's business was not, contrary to IBM's assertion, too remote or speculative to grant AMI standing to sue.[94] The alleged injury to AMI's business was, under AMI's theory, "inextricably intertwined with the injury (IBM) sought to inflict" on the leasing companies. *See Blue Shield of Va. v. McCready*, 457 U.S. 465, 484, 102 S.Ct. 2540, 2551, 73 L.Ed.2d 149 (1982). The harm to AMI's business was forseeable to IBM. *See id.* at 479, 102 S.Ct. at 2548. The IWSC impacted directly on AMI's business. *See Bravman*, 552 F.2d at 100. AMI was "within that area of the economy . . . endangered by a breakdown of competitive conditions" allegedly resulting from the IWSC. *Blue Shield*, 457 U.S. at 480, 102 S.Ct. at 2549 (quoting *In re Multidistrict Vehicle Air Pollution M.D.L. NO. 31*, 481 F.2d 122, 129 (9th Cir.1973)).

III.

In order to prevail under Section 1 of the Sherman Act, AMI must prove that IBM's IWSC constitutes a "contract, combination . . . or conspiracy" which unreasonably restrains trade. *See* 15 U.S.C. § 1. AMI has failed to make either showing.

A.

AMI does not contend that IBM engaged in a conspiracy. AMI argues that the existence of the necessary contract or combination was established by evidence that IBM obtained the unwilling agreement of third parties, including leasing companies, to pay the IWSC. *See*

---

[94] IBM does not contend that granting standing to AMI will create the risk of duplicative recovery involved in *Illinois Brick Co. v. Illinois*, 431 U.S. 720, 97 S.Ct. 2061, 52 L.Ed.2d 707 (1977) and *Merican, Inc. v. Caterpillar Tractor Co.*, 713 F.2d 958 (3d Cir.1983) *cert. denied*, 465 U.S. 1024, 104 S.Ct. 1278, 79 L.Ed.2d 682 (1984). IBM's position is that AMI was an insufficiently "direct" victim of the alleged harm to allow it to recover damages. *See* I.M. at 43; *see also Associated General Contractors, Inc. v. California State Council of Carpenters*, 459 U.S. 519, 540, 103 S.Ct. 897, 909, 74 L.Ed.2d 723 (1983). That AMI, as a business engaged in cycle conversions, did not (like the leasing companies) compete with IBM in the placement of computers with end-users is nondispositive. *See, e.g., Bravman v. Bassett Furn. Industries, Inc.*, 552 F.2d 90, 96 (3d Cir.1977).

A.R.M. at 52. According to AMI, IBM thereby entered into an unlawful contract or combination. *See id.* at 55.

The flaw in AMI's contention is that payment by third parties of the IWSC, and thus the formation of a contract or combination, did not adversely impact on AMI's business. Under AMI's theory, payment of the IWSC enabled third parties to export IBM computers, and this favored AMI's cycle conversion business. Thus, AMI performed cycle conversions on new IBM computers in 1984, after AMI's customers paid the IWSC. Beckwith, Tr. 1310; Allen, Tr. 389-90. Although AMI may have been better off without the IWSC, it was not harmed when leasing companies paid the IWSC. What AMI contends injured its business was IBM's 1980 announcement that it would discontinue providing warranty service (at no extra cost) to U.S. machines exported during the initial twelve-month warranty period, since the announcement of the IWSC stemmed the flow of third party shipments. The alleged harm derived not from the contract or combination, as in the principal cases upon which AMI relies, *see Albrecht v. Herald Co.*, 390 U.S. 145, 88 S.Ct. 869, 19 L.Ed.2d 998 (1968); *United States v. Parke, Davis & Co.*, 362 U.S. 29, 80 S.Ct. 503, 4 L.Ed.2d 505 (1960), but from IBM's unilateral decision and policy.[95] IBM independently instituted the IWSC, and such independent action is not proscribed by Section 1. *See, e.g., Monsanto Co. v. Spray-Rite Service Corp.*, 465 U.S. 752, 761, 104 S.Ct. 1464, 1469, 79 L.Ed.2d 775 (1984).

B.

AMI contends that "[t]he IWSC had the purpose and effect . . . of eliminating" competition in foreign commerce. A.M. at 62. Assuming that AMI established the existence of a contract or combination under Section 1, I find, based on "all of the circumstances of [the] case," *see GTE Sylvania*, 433 U.S. at 49, 97

---

[95] To the extent that AMI contends that IBM's enforcement of the IWSC (by collecting third party IWSC payments) was necessary to underscore the seriousness of IBM's IWSC announcement and produce the allegedly desired chilling effect on third party shipments, I would regard the argument as too speculative to establish the existence of the necessary contract or combination.

S.Ct. at 2557, that AMI has failed to prove that the IWSC constituted an unreasonable restraint of trade.

Although implementation of the IWSC dissuaded some leasing companies and AMI from shipping new IBM computers or MESs in competition with IBM, the IWSC's overall impact on competition was insufficiently adverse to support a finding of illegality. AMI has neither defined the relevant market allegedly affected by the IWSC nor attempted to measure the IWSC's impact on such a market. While lack of proof of a relevant market is not fatal to AMI's claim, *see* Federal Trade Commission v. Indiana Federation of Dentists, 476 U.S. 447, 460, 106 S.Ct. 2009, 2018, 90 L.Ed.2d 445 (1986), an inquiry into market power and market structure helps determine the competitive impact of a challenged business practice under the Rule of Reason. *See e.g., Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 104 S.Ct. 2731, 81 L.Ed.2d 628 (1984).

Even as to companies which the evidence shows competed or were in a position to compete with IBM for the placement of IBM computers abroad, the IWSC did not impose an unreasonable restraint of trade. IBM did not condition the sale of its computer equipment upon payment of the IWSC. Nor did IBM require payment of the IWSC as a condition to the installation abroad of a machine bought in the United States. *See* Ritchie, Tr. 1099; *see also* Lewis, Tr. 532-33. Payment of the IWSC was optional. *See* DX 1381, at 2; *see also* Baumol, Tr. 1670-72, 1695-96. As an alternative to purchasing warranty service from IBM on an IWSC basis, customers interested in buying IBM computers in the U.S. and placing them abroad, and also interested in having them covered by warranty services, could: provide the installation and/or maintenance services themselves; obtain installation and/or maintenance services on a fixed-cost or time and materials basis from third-party service companies; or obtain such services from IBM on a time-and-materials basis. PX 57; PX 607G at at 24-25; Ritchie, Tr. 1099; DX 1381 at 2.[96] Based on evidence that end-users preferred fixed-price maintenance service over maintenance service on a time-and-materials basis, *see* Smith, Tr. 594-95, third-

---

[96] For computers bought in the U.S. and installed abroad, it was impossible to obtain IBM fixed-cost installation and/or maintenance service in the first year after the purchase of the machine without paying the IWSC. Levin, Tr. 75-76.

party fixed-cost installation and/or maintenance services provided the most viable alternative to paying the IWSC.[97] A number of companies were engaged in the provision of such services. *See* DX 1351 (*e.g.*, pp. 6-10); Phillips, Tr. 1589-94.

Payment of the IWSC reduced but did not eliminate the business opportunity created by the currency imbalance. For example, in July, 1980, despite the IWSC, a differential exceeding $800,000 remained between the European and U.S. price (in U.S. dollars) for a typical 303X computer. PX 517, at 2; PX 452, *see also* PX 592, at 85635.

AMI acknowledges that during the relevant time period "there were instances when it might have proved economically feasible to export machines from the United States even after paying the IWSC," A.P.F. at ¶ 225, but adds that these potential opportunities were closed by delays resulting from IBM's policy of quoting IWSC prices solely on a "request for price quotation (RPQ) basis." *Id.* Although he never requested an IWSC RPQ, *see* Smith, Tr. 615, Gary Smith of CMI testified that "the response time [for obtaining an IWSC RPQ] was too long." *Id.* at 592-93. Mr. Ritchie of IBM acknowledged that third parties interested in IWSC quotes complained about delays attributable to the RPQ process. Ritchie, Tr. 1148-49. However, there is no evidence that such delays resulted from anything other than IBM's inability to determine the appropriate IWSC more quickly. An IWSC was determined on a case by case RPQ basis and was prorated for the number of months remaining on the product's initial warranty. Lewis, Tr. 461-62; Smith, Tr. 592; Ritchie, Tr. 1095; DX 2221 at 42-43; PX 67. The IWSC was intended to reflect IBM's costs for providing warranty service abroad, and calculation of the IWSC depended on several variables, including the country in which the machine would be installed, the model type, and the machine's particular configuration. *See* DX 2221, at 42; PX 67, at 1; Levin, Tr. 73-74. "The [IWSC RPQ quotes] could vary with different configurations." PX 73, at 1. IBM therefore did not publish a price list of IWSC charges. Mr. Smith of CMI testified that he told IBM that if he were to place an RPQ for an IWSC, he would need a

---

[97] Third party installation and/or maintenance services may not have been perfect substitutes for IBM fixed-cost warranty services, *see* Lewis, Tr. 469, but they were a reasonable alternative.

response within a matter of hours. Smith, Tr. 616. There is no evidence that IBM could satisfy such a request.

The IWSC's impact on the shipping activities of leasing companies is difficult to assess but does not appear to have been preclusive. CMI, with offices in Geneva, Paris, London, Frankfurt, and Munich, continued to import and export used IBM machines (*i.e.*, machines off the initial warranty coverage and therefore not subject to the IWSC) after implementation of the IWSC, but did not import or export new computers. Mr. Smith of CMI testified that the IWSC "kept us" from importing or exporting new equipment. Smith, Tr. 595. However, it is unclear that CMI imported or exported new IBM equipment prior to the implementation of the IWSC. *See* Smith, Tr. 593-94. Mr. Lewis of Comdisco testified that Comdisco did not import or export new IBM MESs or features after institution of the IWSC "because of the RPQ surcharge", Lewis, Tr. 465-66; *see also* PX 61, but also stated that Comdisco "imported at least one" IBM computer under warranty during the IWSC period. Lewis, Tr. 538. He also acknowledged the possibility that Comdisco shipped other on-warranty computers during the same period. Lewis, Tr. 539.

The IWSC's impact on AMI's business was no more harmful. AMI continued to perform cycle conversions for leasing companies on used IBM equipment after the implementation of the IWSC, Allen, Tr. 286; indeed, its cycle conversion business grew during the IWSC period. *See* Allen, Tr. 286, 386-87; DX 1875A. Further, despite Mr. Allen's assertion that AMI's cycle conversion work on new IBM computers "in essence" stopped with the introduction of the IWSC, Allen, Tr. 283, AMI performed cycle conversions on new IBM computers in 1984 and performed more of such conversions in that year than in 1985, the year IBM discontinued the IWSC. Beckwith, Tr. 1310; Allen, Tr. 389-90.

C.

AMI has also failed to establish that IBM's purpose in implementing the IWSC was anticompetitive. The weight of the evidence supports IBM's assertion that it instituted the IWSC in order to accommodate a growing number of customer requests for warranty service on exported machines and to recover substantial unanticipated costs associated with providing such service. IBM's one-year limited

warranty on new machines expressly excluded coverage on machines placed outside the U.S. or Puerto Rico during the initial one-year period. *See supra*, pp. 298-299. The main reason for the warranty limitation was IBM's desire "to supply IBM products and services through the IBM organization operating in the country where those products are installed or services rendered." DX 2221, p. 42; PX 67 p. 1. Mr. Robertson of IBM testified that "IBM sells equipment in the United States for installation and use within the United States." Robertson, Tr. 699.

The purchase price of new IBM machines subject to the limited warranty included only a price for installation and warranty services to be provided in the country in which the equipment was bought. Nevertheless, prior to the implementation of the IWSC, largely due to the fact that there were not a great number of cross-border shipments, IBM generally provided installation and warranty services to computers exported from the United States to Europe or Japan (and vice versa) during the initial warranty period at no additional cost. Ritchie, Tr. 1097. However, IBM never altered its express limited warranty provision or policy. DX 2221 at 42; PX 67 at 1. The increase in the cross-border movement of IBM equipment by IBM customers (including leasing companies) resulted in increased costs to IBM and disrupted IBM's planning for the provision of warranty and maintenance services. The avowed purpose of the IWSC, supported by the evidence, was to compensate IBM for the additional costs of providing installation and warranty services in a country other than the country of purchase, and to recover for IBM the associated, additional administrative expenses. *See* Ritchie, Tr. 1094-95; Beckwith, Tr. 1307-08; DX 2221, at 42; PX 67, at 1. The IWSC reflected IBM's cost of providing services for a machine during the remaining portion of the initial warranty period that the machines would be outside of the United States. *Id.*; *see also* Levin, Tr. 73-74.

AMI's assertion that the IWSC amounted to a double charge for IBM installation and warranty service is unsupported by the evidence. Prof. Levin acknowledged that IBM gave customers a credit for its savings on out-of-pocket expenses if the new computer were placed initially in a country other than the country of purchase. IBM, therefore, did not charge customers twice for the costs of one IBM installation. Also, IBM incurred costs of planning for, and ensuring,

warranty service (and the necessary administrative organization) in the country of sale whether or not the customer transferred the IBM equipment to another country. The cross-border shipment of the machine resulted in similar and additional costs for IBM for which it was not compensated by the original purchase. Ritchie, Tr. 1094-95; Beckwith, Tr. 1307-08; DX 2221, at 42; PX 67, at 1. AMI has not shown that the price of warranty service included in the original sales price compensated IBM for the warranty service provided abroad.

In an effort to show that the purpose of the IWSC was not to recover unexpected additional costs, AMI refers to the disparity between the IWSC quotes it received in 1981 for two 3081 D16 computers ($355,630 and $345,080) and IBM's 1985 price for fixed-cost maintenance services on similar computers in the U.S. ($63,801 per machine). A.R.M. at 49. Assuming that AMI's calculation of the fixed-cost maintenance service is accurate (there was no trial testimony on the subject), AMI's comparison is of minimal probative value because the two services compared are fundamentally different, involve computer equipment at different product-cycle stages, and are performed pursuant to contracts imposing distinct obligations on IBM.[98] *See* PX 69.

IBM refused to disclose to Comdisco the methodology and underlying details concerning the calculation of the IWSC. *See* PX 64 at 81598; PX 69 at 81593; PX 72 at 2221. IBM denied Comdisco's offer to pay IBM's actual, additional costs and its request to be able to purchase IBM's standard fixed-cost maintenance services during the first year of a new machine. *See* PX 64; PX 72 at 2221. IBM's denial of the latter request was based in part on the fact that the IWSC and the standard maintenance agreements provide for different services. *See* PX 69. These facts do not raise sufficiently serious doubts about the legitimacy of IBM's asserted business justification for the IWSC to support a finding that the policy was unreasonable or unlawful.

---

[98] As with IBM's OTC prices for 308X upgrade parts, to the extent that AMI asserts an independent claim on the theory that the IWSC price was unlawfully high, such a claim fails under the Sherman Act.

AMI's other attempts to establish that the IWSC reflected an anticompetitive purpose also fail. A handwritten, internal IBM memorandum regarding "Cross Border Transaction Proposal--Concerns and Recommendations" stated "There is an implicit assumption that 3rd party conversion will be eliminated." *See* PX 50 at 3918. AMI argues that the document shows that IBM intended the IWSC to eliminate third party cycle conversion activity. *See* A.M. at 65. However, although the document mentions "installation and warranty RPQ", it nowhere expressly refers to the IWSC and AMI produced insufficient evidence linking the document to the IWSC. AMI's interpretation of the memorandum does not follow from a reading of it. Further, the document is dated May 17, 1982, nearly two years after IBM instituted the IWSC.

Another handwritten document captioned "Objective" states, "Support country integrity through marketing and product supply", and "Prevent the non-IBM export of new machines." *See* PX 68. AMI contends that the document reflects IBM's desire to prevent, through implementation of the IWSC, the cycle conversion of new IBM equipment and the resulting competition from leasing companies exporting cycle converted equipment from the U.S. to Europe. A.M. at 64, 65. The document is undated and unsigned, and nowhere refers to the IWSC or any type of warranty service. AMI has failed to connect the document to IBM's IWSC.[99]

AMI also relies on an unsigned IBM document, dated November 12, 1984 (over four years after announcement of the IWSC) and consisting of numerous pages, one of which contains the following language: "Opportunity Analysis"; "Cross Border"; "IWSC is an Inhibitor (308X)." *See* PX 592 at 85633. Although at least two

---

[99] At his deposition, Paul J. Rizzo, Vice Chairman of IBM and a member of IBM's Management Committee, stated that he was involved in the decision to institute the IWSC, Rizzo, Dep. Tr. 107-108, and that he thought the handwriting on PX 68 was his own. *Id.* at 105-06. At trial, Mr. Rizzo testified that although the handwriting on PX 68 was similar to his handwriting, he was positive that he was not the author of PX 68 and could therefore not recall any of the circumstances surrounding the document. *See* Rizzo, Tr. 1195-1199. Mr. Rizzo stated that the document was written by Phillip Guthoff, a member of IBM's Comparable Planning Staff, in 1980. Neither party called Mr. Guthoff as a witness. I find that Mr. Rizzo's trial testimony was credible.

pages of the document expressly refer to the IWSC, (*see* PX 592, pp. 85633, 85635) and one contains apparently incriminating words, the document provides AMI with little support because AMI made no attempt at trial (or through discovery) to shed light on the meaning of the document or the page on which AMI relies. The disjointed language to which AMI refers is too thin a basis upon which to rest antitrust liability.[100]

* * *

For the foregoing reasons, judgment will be entered in favor of IBM and against AMI on AMI's Section 1 claims based on IBM's net pricing policy and Installation and Warranty Service Charge.

---

[100] As concerns the IWSC, this case is unlike *Eiberger v. Sony Corp.*, 622 F.2d 1068 (2d Cir.1980), *cert. denied sub nom. Simplot v. Strobl*, 474 U.S. 1006, 106 S.Ct. 527, 88 L.Ed.2d 459 (1985), upon which AMI relies. For example, in *Eiberger*, Sonam exacted warranty service payments from its distributors even when no warranty services were provided. The warranty fees were designed and operated as penalties to enforce territorial restrictions. There was also an admission by a Sonam official that the warranty fees provided a "good system" "to protect our dealer's territory." *Id.* at 1073.

Excerpts from Third Circuit Joint Appendix
(AMI Proposed Findings ¶¶18-33) (JA 00220-JA00226)

III. EMERGENCE OF THE LEASING COMPANIES AS COMPETITORS OF IBM

A. *The IBM Consent Decree*

18. On January 21, 1952, the United States filed a complaint against IBM in the United States District Court for the Southern District of New York. The complaint alleged violations of Sections 1 and 2 of the Sherman Act (15 U.S.C. Sections 1 and 2). (PX 471 at 1, 2). The case was resolved when the United States and IBM entered into a Consent Decree on January 15, 1956. *United States v. International Business Machines Corp.*, Civil Action No. 72-344. 1956 Trad. Cas. ¶ 68,245. (PX 471).

19. The Consent Decree enjoined IBM from offering IBM electronic data processing machines on a lease or rental only basis. IBM was required to sell its electronic data processing machines outright. Section (IV)(a) of the Consent Decree provides:

> IV. (a) It is the purpose of this Section IV of this Final Judgment to assure to users and prospective users of IBM . . . electronic data processing machines at any time being offered by IBM . . . an opportunity to purchase and own such machines at prices and upon terms and conditions which shall not be substantially more advantageous to IBM than the lease charges, terms and conditions for such machines.

(PX 471 at (IV) (a)). IBM was ordered to "sell new . . . electronic data processing machines of each type at any time thereafter currently being manufactured and offered for lease. . . ." (PX 471 at (IV)(b)(2)).

20. As a result of the Consent Decree requirement that IBM sell its electronic data processing machines, competition from new and used IBM equipment marketed by leasing companies developed. (DX 2168 at 01030001281; LaRocca, Tr. 1178).

B. The Leasing Companies

21. Leasing companies such as Comdisco and CMI Corporation ("CMI") purchase new large scale mainframe computers from IBM. The leasing companies also purchase used IBM large scale mainframes in the market created by the Consent Decree. These machines are offered by the leasing companies in competition with new large scale mainframe computers offered by IBM. (Lewis, Tr. 452-453; PX 375 at 12, 21; Rizzo dep. 21-23; Robertson dep. 42; A. Carr dep. 58-59, 135).

22. Many users of IBM large scale mainframes lease their machines from leasing companies. (Levin, Tr. 742; PX 375 at 12-13; PX 493; PX 272 at 75500). These users' preference for leasing is due in large part to concern about technological change. (PX 375 at 12-13).

23. In early 1984, IBM's purchase price for 308X series models ranged as high as $8,210,000 for the 3084 QXC. (DX 798 at 0832).

24. Leasing companies in the computer industry engage principally in "risk leasing." (PX 375 at 14-15). Under risk or operating leases, the leasing company retains title to the equipment and does not recover most of its investment during the initial lease term. (PX 375 at 15, Houghton, Tr. 1419-1420, 1422; Pontikes dep. 8-9). Because leasing companies typically do not recover their investment in a large scale mainframe until the machine has been placed on a subsequent lease, it is necessary "to make the product continue to generate revenue and to continue to be on lease. . . . The risk lease entrepreneur . . . must get [the computer] on second lease" (PX 375 at 21), and place it as quickly as possible. (PX 375 at 19; Levin, Tr. 66-67).

25. IBM Credit Corporation ("ICC"), a subsidiary of IBM, offers leased IBM large scale mainframe computers in competition with independent leasing companies. (Rizzo, Tr. 21-22; PX 375 at 12-15; DX 2166 at 01030001246; Smith, Tr. 587; see PX 9 at 7736, *see* Proposed Findings 29, 31, *infra*). Leasing companies' lease plans

compete with IBM's and ICC's various purchase, lease and rental plans. (Lewis, Tr. 452).

26. As of April 30, 1983, there were 714 non-IBM owned 3081 machines; of those, 277 or 39% were owned by "third parties" (leasing companies) and 437 were owned by non third parties. As of the same date there were 226 non-IBM owned 3083's. Of those, 93 or 41% were owned by third parties and the remainder were owned by non third parties. (PX 25 at 85689).

27. Comdisco and CMI are the first and second largest of the companies which lease IBM large scale mainframe computers. (Levin Tr. 66). Comdisco has been the largest purchaser of 308Xs for five or six years. Comdisco and CMI are two of IBM's principal customers. (Gibson dep. 112-113; A. Carr dep. 31, 34-35).

28. In December, 1986, the value of IBM equipment on Comdisco's books measured by IBM's list price was approximately $7 billion. (Pontikes dep. 11). Ninety-seven percent of Comdisco's inventory of large scale mainframes consisted of IBM manufactured machines. (Lewis Tr. 447). CMI estimated that the value of its portfolio of IBM equipment was between $3 and 4 billion at original cost. (Smith, Tr. 560).

C. Leasing Companies Require Reconfiguration Service In Order To Compete Effectively Against IBM

29. Leasing companies compete directly with IBM in the placement of large scale mainframe computers with end users. It is frequently necessary for leasing companies to reconfigure the machines they seek to place with their customers in order that the used equipment may compete effectively with the new large scale mainframes offered by IBM. (Lewis, Tr. 454; Rizzo dep. 102-103, 178-179; Robertson dep. 42; A. Carr dep. 134-135; Gibson dep. 52; PX 375 at 21; *see* Pontikes dep. 16). Melvin Lewis, Comdisco's Vice President for Operations, described the importance of reconfiguration to the leasing companies:

Q. What role if any does the reconfiguration play in this competition between used equipment and new IBM equipment?

A. A significant role.

Q. Can you explain what that role is?

IBM COUNSEL: I am going to object to this line of questioning. I don't think you have established an adequate foundation for it. This witness is not in marketing. He is in operations.

THE WITNESS: The role is that some features which are standard on the current generation of systems may be operational on the preceding generation of equipment, whereby to have same functionality between the new and the used systems, one would have to reconfigure, if necessary, the old system by enhancing it with certain features to make it perform similar functions to the new.

(Lewis, Tr. 454).

30. When new IBM large scale mainframes displace leasing company equipment, it is essential that the displaced equipment be reconfigured promptly in order that the displaced equipment may be placed with new customers without undue delay. (PX 272 at 75504, 75506, 75511, 75513, 75525; A. Carr dep. 52-54).

> "Because of the substantial investment, it is very important for a leasing company to, when a machine comes off lease, to place it very quickly with another customer. They don't want to sit holding a valuable asset worth several million dollars and not earn revenue from that asset for a substantial period of time. Typically when a machine comes off lease . . . the particular needs of the next customer will be different from the original customer, there may be specific features that the new customer wants on the machine that are different from the original one."

(Levin, Tr. 66-67; Lewis, Tr. 512-513; *see* Lewis, Tr. 451-452; Allen, Tr. 281-282).

31. Leasing companies are viewed by IBM as competitors. (Rizzo dep. 21, 178-179; PX 80 at 82358; PX 122 at 48681). Used IBM large scale mainframes which have been upgraded compete directly with new IBM equipment. (PX 375 at 2-3; Carr dep. 58-59; Robertson dep. 42).

32. Leasing companies and other "third parties" such as AMI must acquire the parts necessary to reconfigure IBM large scale mainframe computers from IBM; there are no other sources for these parts. (Proposed Findings 133-148, *infra*; *see* Van Hellemont, Tr. 415; Lewis, Tr. 511).

33. IBM's Director of NAD Industry Relations, Ambrose A. Carr, Jr., described "third party" dependence upon IBM by quoting an article in the Wall Street Journal:

> "IBM 'computer related' customers exist at the sufferance of giant IBM, like a homesteader on the slopes of a slumbering Mt. St. Helens.
>
> —Wall Street Journal"

(PX 593 at 65377; A. Carr dep. 45-46).

Excerpts from Third Circuit Joint Appendix
(AMI Proposed Findings ¶43) (JA 00229)

A. AMI's Growth

43. AMI's began operations with an initial capital investment of $500 from each of the three shareholders. (Allen dep. 216-218; Ade dep. 92; Myland dep. 63). AMI's revenues increased from $90,530 in its fiscal year ended April 30, 1974 to $14,897,401 in its fiscal year ended April 30, 1983. Taxable income increased from $2,777 to $542,415 during the same period. (PX 2A at 1000036974 and 1000037238; *see* Levin, Tr. 62).

Excerpts from Third Circuit Joint Appendix
(AMI Proposed Findings ¶¶128, 131, 153) (JA 00269-JA00280)

128. Reconfiguration with donor or customer supplied parts refers to the reconfiguration of a machine using parts obtained by their removal from another machine.

131. AMI was only able to perform sixteen MIPS upgrades on 308X large scale mainframes because of the limited availability of donor or customer supplied parts. (Levin, Tr. 110-112; Allen, Tr. 339-340).

153. The average price AMI received for performing E to B upgrades using customer supplied parts was $21,000; for E to J upgrades, $19,000; for J to K upgrades, $23,000; and for D to K upgrades, $20,000. (PX 466; Levin, Tr. 110-111).

Excerpts from Third Circuit Joint Appendix
(AMI Proposed Findings ¶190) (JA 00299)

190. While AMI's revenues reached their highest level in the fiscal year ended April 30, 1983 ($14,897,401) (Proposed Finding 43, *supra*), AMI's revenues declined to $13,991,476 in the fiscal year ended April 30, 1984, to $9,160,558 in the fiscal year ended April 30, 1985, and to $7,854,105 in the fiscal year ended April 30, 1986. (PX 2A; DX 296; PX 451).

Excerpts from Third Circuit Joint Appendix
(Lewis, Trial Trans. 452-53) (JA 01131-JA01132)

marketing may already have the same day found homes or a new lease for these three systems. So all of a sudden I am faced with the situation where I have three systems earmarked for three customers, I may have to pick them up one week and deliver them all and install them all the following week, which gives me very little time to prepare for any reconfiguration that may be required."

MR. HILLMAN: Page 24, line 13.

Q. "Are you aware of the competition which Comdisco encounters in marketing large scale main frames?

A. I am.

Q. Can you tell me what the basis of your knowledge is?

A. I am aware of the mix of the competitors. On one hand you have the manufacturer, IBM. You have the subsidiary ICC. And we also have our direct competitors, such as Thomas, Nationwide, CMI Corporation, Grayhound, Phoenix, ICS.

Q. Other leasing companies?

A. Other leasing companies as well as other brokers.

Q. Can you tell me under what circumstances Comdisco encounters competition from IBM?

A. On the one hand we compete directly with IBM on the placement of new systems. Currently that would be the 3090 line where it would be our lease plans versus their various lease, rental and purchase plans.

We compete directly with ICC for both new and used systems.

Q. Do you ever utilized used systems to compete against IBM's new equipment?

A. We do.

Q. Is that a frequent or infrequent occurrence in the market place?

A. Frequent.

Excerpts from Third Circuit Joint Appendix
(Lewis, Trial Trans.)

Q. Can your explain to me how your used systems are utilized to compete against new IBM equipment offered by the IBM Corporation?

A. Price performance; in other words, you would have to earmark the current line of systems at their generally available price, which would be list price, whereas the last series of systems would be available at less dollars on a used market.

So, on one hand, you are comparing the price of your—the current price of your used systems compared with IBM's current list price for the next series up.

And then secondly, you compare the performance of the two series of systems. Naturally, it's taken for granted—I shouldn't say that. It's a fact that the newer systems offer more performance, but at top dollar. So there is a trade off performance/feature-wise, memory levels, and the dollars the customer has to lay out.

Excerpts from Third Circuit Joint Appendix
(Lewis, Trial Trans. 499-501) (JA 01178-JA01180)

(The following testimony is quoted from the deposition of Melvin V. Lewis)

BY MR. HILLMAN:

Q. Do you know what IBM charges for labor on a time and materials basis?

A. Approximately $200.

Q. $200 an hour?

A. That's correct.

A. So, if you took the E to B upgrade, which you say takes approximately five hours, and you utilized IBM's time and materials rate to figures out what the labor component was, we would be talking about basically $1,000, is that correct?

MR. HILLMAN: The objection is withdrawn.

IBM's labor rate when and on what type of activity?

A. You cannot make that comparison because you are unable to call up IBM and ask them to perform such a service. They will not do it. Two different comparisons.

Q. Well, If you were confronted with the situation in which IBM sold Comdisco an E to a B without the labor included and IBM charged you for the labor at its time and materials rate and AMI charged you for the labor at its normal rates, who would you pick?

MR. HILLMAN: The objection is withdrawn.

Q. IBM or AMI?

A. Again, you can't compare the two. And the reason for that, if I were to somehow acquire on the open market a used E to B upgrade and I asked IBM to install that E to B under their prevailing hourly rates, they would not do so. They would inform me that I would have to submit to IBM an RPQ for pricing, whereupon within a set period of time they would give me back a price quotation to

reinstall that E to B. And it has no correlation to hourly rates for routine maintenance.

So far as I know, when you mention hourly rates, that would be for routine maintenance services. IBM, so far as I know, does not quote hourly rates to move components from a system to another.

Q. Well, you stated on direct that if AMI were able to fabricate features and upgrades for IBM 308X computers, Comdisco would be interested in purchasing those features and upgrades from AMI, is that correct?

A. That's correct, presupposing that there is inherent savings here.

Q. That's right. So if there wasn't an inherent savings, if it, in fact, cost more to get it from AMI then you might not be interested in getting it from AMI, is that correct?

A. I still possibly would be interested if the—even if the cost was more than IBM's, if it was just a tad more percentage, it may behoove me to spend the extra money if I could lock in the flexibility by committing ahead of time to a certain number of upgrades.

If it cost me a small premium to guarantee flexibility, on occasion I may do that.

BY MR. FELTOON:

Q. But, all other things being equal, if AMI were charging more than IBM, you would go with IBM, is that correct?

A. It's a factor of how much more. If it was—that is—without knowing how much more, I couldn't answer your question.

Q. Now you testified a moment ago that a net price transaction is a transaction in which IBM takes certain parts back?

A. Correct.

Q. And in a 308X upgrade, those parts would include TCMs, is that correct?

A. That's correct.

Q. And TCMs are very valuable commodities, is that correct?

A. That's correct.

Q. And from time to time, Comdisco will try to get the parts back from an upgrade that it is involved in, is that correct?

A. If, in fact, they are our property, yes.

Q. And you are familiar with the term "residuals"?

A. I am.

Q. Can you tell me what a residual is?

A. A residual would be a part or a component that, after the upgrade is finalized, would be surplus.

Q. Would Comdisco like to have the opportunity of purchasing from IBM net priced features—

A. We would.

Q. Question continues—without labor included in the purchase price so as to permit Comdisco or any other service company to perform the installation of the feature as well as the removal of the parts and the return of the parts to IBM.

There's an objection to the form.

A. We would.

Q. And can you tell me, Mr. Lewis, why Comdisco would like to have that opportunity?

Mr. Edwards: Same objection.

A. Flexibility.

Q. You testified that you would like this opportunity in order to have flexibility. If you had that opportunity would there be occasions on which Comdisco would utilize the services of AMI to perform the installation of net priced features and the removal of parts and their return to IBM?

A. There would be.

MR. FELTOON: Can you read the answer please starting at line 15?

A. Naturally presupposing the price was lesser than, the same as or in rare exceptions only a slight premium above the prevailing IBM list price.

MR. FELTOON: Transcript page 196 line 2.

Excerpts from Third Circuit Joint Appendix
(Lewis, Trial Trans. 1723-25) (JA 02397-JA02399)

Q. Do you know about the IWSC document I referred to?

A. Originally going back to '81, '82.

Q. A document that was supposedly written by Mr. Paul Rizzo of IBM about IWSC, do you know about that?

A. No, I do not.

Q. No. You have previously testified that when AMI does work for you, they charge about $1,000 an hour, do you recall that?

A. Yes, I do.

Q. Has AMI performed any J to K model upgrades for you, sir?

A. It is my recollection they have not.

Q. Have they performed any E to B model upgrades for you?

A. Yes.

Q. Do you recall what they charged you just for the installation service on an E to B upgrade?

A. Approximately $25,000 to $30,000.

Q. How many hours did it take to do that?

A. Approximately in the vicinity of ten hours, two men, 20 man hours.

Q. Do you know how much of the IBM E to B upgrade price is accounted for the installation labor, sir?

A. No, I do not.

Q. If you are right it took 20 man hours to install that E to B, and you paid $30,000 and you were paying about $1,500 an hour for AMI's time, is that about right?

A. That would be correct.

Excerpts from Third Circuit Joint Appendix
(Lewis, Trial Trans.)

Q. You testified on direct examination that you wanted to be able to get parts from IBM without installation service included in the price, do you recall that, sir?

A. Yes, I do.

Q. You testified that you wanted that because it would give you what you said was greater flexibility?

A. That is correct.

Q. Now, at your deposition, you testified what you meant by getting greater flexibility and using AMI was only if their price was, I'm quoting now, "Lesser than, the same as, or in rare exceptions, only a slight premium above the prevailing IBM list price."

Do you recall that testimony?

A. Yes, I do.

Q. Was it true, sir?

A. Yes. It continues to be so, it remains so.

Q. If you just assume with me, for a moment, I am not asking you to accept this as true, I am asking you to assume with me, that in installing model upgrades on 308X computers, IBM is building in a charge of say 180 or $200 an hour and you, according to the E to B example we just talked about, paying AMI $1500 an hour, do you consider $1500 an hour, and 180 to $200 an hour, a situation where AMI's price is only slightly greater than IBM's?

A. Under the circumstances you have mentioned, they are more than slightly greater. However, let me preface that by saying I am not certain—you are stating that IBM would charge approximately $7,000 to perform such a change, the labor cost?

Q. I understand.

A. I don't know for a fact that's true.

Q. I understand.

Now, you have also testified that, "When a net priced MES is installed on a machine on lease by Comdisco to a customer, that's transparent to you and to the user, it's just a paperwork transaction, it's installed and we would up the rental rate accordingly."

Do you recall that, sir?

A. Yes, I do.

Q. Is that accurate as to what you do when that type of an MES is installed?

A. Not entirely.

You have to understand, so it is clear to everyone involved here, that we have two ongoing circumstances at Comdisco; one of which is our system base, that's in place at a customer's location.

The second group of which is the physical movement of systems in their second life cycle, so to speak. Okay.

There's a big difference here.

Excerpts from Third Circuit Joint Appendix
(Allen Depo. 938-39) (JA 02897-JA02898)

Q. Let me start again.

Mr. Levy: Will your witnesses cooperate with me and make little exhibits as we go along?

Mr. Chesler: Never.

Mr. Levy: Put that piece of paper back. Keep it in your head.

Q. I want you to assume first that AMI can purchase from IBM an E to B MES upgrade.

A. All right.

Q. Second, that IBM's standard list price for that upgrade including labor is $420,000; third, that AMI can purchase it from IBM without a labor component for $417,608. Do you have those assumptions in mind, Mr. Allen?

A. Yes.

Q. My question to you is whether under those circumstances in your judgment it is a worthwhile business opportunity for AMI to purchase that upgrade for $417,600 from IBM and perform that upgrade for customers in competition with IBM?

A. Do you have the delta number that we are talking about?

Q. $2400 is the difference between the two prices.

A. No, I do not.

Q. In your judgment, Mr. Allen, as president of AMI, how much would that delta number have to be between IBM's list price and IBM's SWRPQ price in order for it to be in your judgment a business opportunity worth engaging in?

A. Are there any other terms and conditions appropriated to this figure? I would need those if you ask me now to determine whether it is a good or not good position. Penalties, how many I have to buy. You also must remember that up through this point AMI always built—it's been my feeling that a certain amount of our profit was buying those parts, whether it be two or a thousand and by over the

counter means—field engineering over the counter means individually putting them together and serializing those features and parts to a machine, making it into the equivalent mes. That has been part of my business. IBM is not affording me that by your last statement.

Excerpts from Third Circuit Joint Appendix
(Allen Depo. 968-69) (JA 02926-JA02927)

A. I thought you said J to K.

Q. It doesn't matter. Let's try again. The record is whatever it is.

Mr. Levy: Just out of curiosity, will you read his first question?

(The reporter reads the requested portion)

Q. I will try the hypothetical again. I want you to assume that AMI could purchase from IBM a B to J upgrade. I want you to assume that IBM's list price including a labor component for that upgrade is $365,000. I want you to assume that AMI could acquire that upgrade from IBM without a labor component in the charge for $361,600. The delta, if that's what you are trying to calculate, is $3400. My question is whether, with those assumptions, in AMI's judgment as president of AMI, sir, it is a viable business opportunity for AMI to purchase those B to J upgrades at that price without labor and engage in the business of competing with IBM.

A. No.

Q. I'd like to ask you another hypothetical question. Let us assume that AMI could purchase from IBM mes upgrade to perform a B to K upgrade, that IBM's list price including a labor component for that upgrade is one million $150,000 and I also want you to assume that AMI could purchase that MES upgrade from IBM without a labor component for $1,143,000. The delta there is $7000. My question to you, Mr. Allen, is, as AMI's president, is it, in your judgment, a viable business opportunity for AMI to purchase that upgrade from IBM at the price excluding the labor component and compete with IBM under those circumstances?

A. You said in an MES format?

Q. Yes, sir.

A. And you haven't identified any other terms and conditions?

Q. That's correct.

A. No. I have to go to the men's room.

Mr. Chesler: All right.

(Recess)

Excerpts from Third Circuit Joint Appendix
(A. Carr Depo. 58) (JA 03269)

AMBROSE CARR

Leasing companies in new and used equipment from time to time entail brokering the equipment in a sense.

Q. When leasing companies and brokers are involved in brokering the equipment, are they engaged in competition with IBM?

A. You would have to give me a specific example.

Q. You don't know?

A. Well—

Q. Conceptually?

A. I can give you an example where they would be in competition with the IBM company.

Q. Would you?

A. If a transaction took place where a piece of used equipment was being considered by a user in competition with a piece of new equipment from the IBM company, that's a competitive situation. The consideration that the customer was presented to him, you know, could have been presented to him by a broker or a leasing company or an equipment dealer or a third party.

Q. And IBM has experienced that competition, has it not?

Excerpts from Third Circuit Joint Appendix
(A. Carr Depo. 135) (JA 03297)

AMBROSE CARR

companies have utilized upgraded equipment in competition with IBM?

A. Leasing companies move their used equipment around in competition with the IBM company against new equipment being sold by the IBM company. That is a competitive situation. If it happens to have a new MES on it or an old MES, it doesn't change the competitive nature necessarily of the competitive situation.

Q. Does the MES facilitate the movement of equipment by leasing companies?

A. I am afraid you are asking me questions on how leasing companies market their products and I am really not qualified to be an expert on that type of question.

Q. Haven't leasing companies complained that they needed MES's in order to facilitate the movement of their equipment?

A. Yes, they have.

Q. Is it your testimony that—let me withdraw that.

Is it your understanding that MES's facilitate the movement of leasing company IBM equipment?

Excerpts from Third Circuit Joint Appendix
(Pontikes Depo. 16-17) (JA 04736 - JA 04737)

Pontikes

equipment, you were then putting them out on lease to customers for periods ranging anywhere from three to seven years?

A. Well, yes, as we were acquiring those. And actually later on into that cycle, the shorter the term of the leases became.

So I can't say that we did seven-year leases in '81, because I don't think we did. I'm sure we didn't.

Q. By '81, what was the range of lease terms that you were placing 303X machines on?

A. Anywhere from two to four years.

Q. How about in 1980? What was the range of lease terms?

A. Probably two to five.

Q. In doing the type of business you've described, Mr. Pontikes, with what types of companies does Comdisco compete?

A. We compete with, you know-- -well, a wide range. We compete with the IBM Company on one side. We compete with various leasing companies, broker/dealers across the country. Sometimes we compete directly against an end-user.

So there is a very competitive business. It's a relatively efficient market.

Q. About how many leasing company competitors do you think you have, sir?

A. Well in excess of 500.

Q. Now, in the course of doing Comdisco's business, do you from time to time deal with third party service companies?

A. Yes, we do.

Q. What are the types of services you use from such companies?

A. We use service companies for a number of things. Installs and de-installs. We use them for storage of equipment. We use them for feature work. We use them for model changes.

We probably also use them at times for—there are some people that just provide third party maintenance, and so we get straight maintenance from some.

Q. Now, what third party service companies do you deal with in any or all of those capacities?

A. Quite a number, quite a number.

Over the last eight years, we have—I think it's been eight years since we have had Technical Services.

Excerpts from Third Circuit Joint Appendix
(Rizzo Depo. 103) (JA 04813)

PAUL J. RIZZO

Mr. Chesler: Objection to form, asked and answered.

A. Yes, sir.

Q. Have leasing companies competed against IBM with large scale mainframe computers that have been upgraded?

Mr. Chesler: Objection to the form.

A. Leasing companies compete against IBM with all kinds of computers.

Q. Including large scales that have been upgraded, is that correct?

Mr. Chesler: Objection to the form.

A. Including machines that you are calling large scale mainframes.

Q. That have been upgraded?

A. That have been what?

Q. Upgraded.

A. Yes, sir.

Mr. Levy: Do you want to break for lunch?

Mr. Chesler: Certainly.

Mr. Levy: See you back in an hour and 15 minutes.

(Luncheon recess)

Excerpts from Third Circuit Joint Appendix
(Rizzo Depo. 179) (JA 04846)

PAUL J. RIZZO

New IBM equipment with a used IBM machine which has been upgraded and when the leasing company is successful in that competition, is that viewed as a loss to IBM?

A. That is viewed as a competitive loss to IBM.

Q. Is it not a fact, Mr. Rizzo, that the fabricators have been helpful to the leasing companies in providing upgrade service which has been used in competition with new IBM machines?

A. That's what I have been told, yes, sir.

Q. Now, with respect to your answer concerning large scale mainframe computers, I think you indicated in response to one of the questions on that subject that a computer used for general purposes within the customer's business was, in your mind, a large scale mainframe computer, is that correct?

A. That's correct.

Q. Are PC's used for general purposes within a customer's business, personal computers?

A. They could be in a small business.

Q. You would refer to a personal computer as a large scale mainframe computer in that

Excerpts from Third Circuit Joint Appendix
(Robertson Depo. 42) (JA 04872)

THOMAS M. ROBERTSON

Q. Just give me the names of the larger brokers you deal with.

A. Universal, Princeton Computer. There is so many, I can't even think of one.

Q. In what manner do leasing companies compete against IBM?

Mr. Edwards: Object to the form.

A. They compete with our terms and conditions is the only thing I could say. They are offering a product in competition with IBM.

Q. They are offering an IBM product in competition with IBM, is that correct?

A. Yes. They are competing with used equipment frequently. There is no one set way. You frequently—they are bringing in used IBM equipment to compete with IBM equipment.

Q. New IBM equipment?

A. From the plant, new IBM equipment. They could have some competitive I/O gear attached to it.

Q. Do leasing companies use upgrades in this competition with IBM?

A. Do they use upgrades?

Q. Do they reconfigure the machines?

A. Yes, I would say they reconfigure a machine.

Excerpts from Third Circuit Joint Appendix
(Plaintiff's Ex. 466) (JA 07182)

LABOR CONTENT OF 308X MIPS UPGRADES
IBM ESTIMATES V. MARKET VALUE

TYPE OF UPGRADE	IBM'S ESTIMATE OF LABOR CONTENT	AMI'S AVERAGE PRICE USING CUSTOMER PARTS
E TO B	$ 2,400	$21,000
E TO J	2,800	19,000
J TO K	7,100	23,000
D TO K	12,350	20,000

SOURCE: AFFIDAVIT OF ALAN ROSS AND AMI INVOICES.

Pricing which will not permit us to compete. With the institution of SWRPQ pricing DSD has shifted all profits into the base price of the Feature.

One week prior to the presentation of your contract, Amby Carr, Gene Clark, and yourself met in our offices regarding your terms and conditions. At this time, no reference was made to a 15 day notice to IBM prior to install. The costs of a maintenance inspection under the terms and conditions of said contract would put us in a deficit on many of the items we wish to purchase. Ninety percent of AMI's work is performed with less than ten days advance notice.

On 3081 quantities ordered on your contract as presented, AMI would spend over three million dollars. Our maximum return on this purchase would be $65,000. That makes a 1.87 percent return on our investment. I am quite confident that no service organization can survive on that profit margin.

In regard to shipping schedules as defined by your contract, there are no penalties to IBM for late deliveries. Although it has been related to me that IBM has an exceptional record for delivering on time, I can only relate to AMI's limited experience on this item. IBM has maintained an 85 percent failure of deliveries on orders to AMI. Example in point are orders made through your Volume Procurement Agreement and MES orders last year with deliveries requested prior to December of 1983.

Tom, I can continue on the shortcomings of this contract and details of prior problems to fill ten volumes of documents. The bottom line is as follows:

1. AMI is more than willing to pay penalties for cancellations and deferrals.
2. AMI will advise IBM of the installation site of all MES's purchased under this agreement, if not prior to, than no later than three days after installation.

inherently limited by IBM's pricing -- in leasing new IBM mainframes, leasing companies are affected by their cost of acquisition -- the price IBM charges them.

Only to the extent that leasing companies remarket used IBM equipment do they provide substitutes for new IBM mainframes.[33] In fact, leasing companies' participation in the secondary market for used IBM mainframes is widely recognized as the single most important constraining factor on IBM's pricing decisions.[34] The

---

33. And even then, used mainframes are only competitive for certain users who do not require newer technology. Many customers who purchase the newest mainframes do not consider used mainframes as an alternative because of rapid technological change. *See AMI-I*, 693 F. Supp. at 280, regarding the rapid advances in technology.

34. According to a book authored by the economists who served as IBM's experts in the more recent *U.S. v. IBM* antitrust suit (which lasted from 1969 to 1982), the availability of used IBM equipment owned by third parties is the most significant factor in restraining the pricing of IBM's new mainframes. Messrs. Fischer, McGowan and Greenwood, who were IBM's expert economists, in their book FOLDED, SPINDLED, AND MUTILATED 84-85 (1983), describe the continued existence of third party lessors and dealers and third-party-owned used computers as critical restraints on IBM's pricing policies for new computer equipment:

> Since computers are extremely durable goods that do not wear out physically and since in many cases older computer systems offered at the right prices are competitive with new computer systems offering better performance, the stock of existing computers, especially those in the inventories of leasing companies, brokers, and dealers, constrains IBM and other computer manufacturers in the pricing of new ones . . . If there were no such dealers, purchasers of new equipment might have to allow old equipment to stay idle or underutilized. First-time users would have to acquire new equipment. Where there is active marketing of existing computers for sale, exchange, or lease, however, a computer manufacturer, especially IBM, pricing

(continued...)

District Court failed to recognize that leasing companies constrain IBM pricing only through participation in the *used* mainframe market, and consequently erroneously failed to eliminate new machines placed by leasing companies from the market share calculation.

Thus, the District Court's conclusion that leasing companies had a 40 percent ownership share of mainframes overstates the size of the relevant market and understates IBM's share of the market. Moreover, in measuring IBM's ability to constrain competition in the downstream parts market, the availability of used computers is meaningless unless appreciable numbers of customers would opt for a used computer rather than a MIPS upgrade or if the parts from used computers provided the means for achieving a MIPS upgrade. Since many, if not most, used mainframes must be reconfigured to suit the needs of the next user, it is important that upgrade parts and service be available in a timely and competitive manner. Here, however, the net price upgrade policy served to limit the practical availability of used computers and of used upgrade parts as alternatives by making upgrades available only on IBM's restrictive terms. Moreover, each removal of a TCM by IBM as part of a net priced upgrade meant fewer TCMs available to facilitate the upgrade of a used computer.

34.(...continued)
its new computers must consider the possibility not only that particular existing computer users will go on using their old equipment, but also that they will acquire additional old equipment as an alternative to the new products being offered by the manufacturer and that potential new users will do likewise. By reducing transaction costs, leasing companies make the stock of used computers a substantial constraint on the price of new ones.